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May 1961

A World on Wheels

(see page 15)

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American Letter

Optimism—with reservations

"Creeping optimism" is one way to describe it. For as the U.S. economy moved into the second quarter, there were signs that the recession had finally "bottomed out." Easter sales pleased the merchants; a modest rise in new orders from the automakers (page 15) pleased the steelmen; even the federal tax collector saw signs that business profits were improving. The stock market continued to move fearlessly ahead of the pack—for several months Wall Street prices seem to have discounted a vigorous upturn (so much so that some shrewd investment men are worried, issuing warnings against speculation).

The Kennedy government agrees—the economy does appear to be moving up. But talk privately to policymakers in Washington and you hear some reservations.

They are looking beyond the upturn. They consider getting out of the present recession only a small part of their main problem of putting the economy on a sound basis for sustained growth. The economists believe the U.S.A. never fully recovered from the last recession, and might not fully recover from this one without further stimulus from the federal government. Hence the plan for a budget deficit in 1961-62.

It will take a lot to do the job, they say. Washington is especially worried by stubborn chronic unemployment in the 5% to 7% range—a consequence of inadequate growth in the face of a fast-rising work force, of rapid technological change, and to a lesser extent, of foreign competition.

[Let it be said that international comparisons of unemployment rates give a false picture of the job-providing capacity of the U.S. economy, which right now has record numbers at work. Comparing a U.S. figure of 6% with a European or Japanese 2% or so vastly understates the foreign relative to the American rate because of different definitions, different reporting techniques.]

Keeping the pressure on

Business expects the government to keep pushing the economy along, injecting as much stimulation as a conservative Congress will allow. Washington thinks it can do this without courting inflation because (1) the pace of the upturn will be slow, (2) there is ample labor and plant capacity, (3) management's inventory policies continue to be tight, and (4) there will be heavy government pressure on management and labor to keep wages and prices in line. A consensus of price forecasters last month saw a less than 1% rise in general industrial prices this year.

The business community has been served with clear warning that government will be tougher than ever on anything it considers to be price-fixing and over-pricing. Investigators are right now checking into a number of industries—from metals to petroleum, insurance to textiles. The only question among businessmen is whether the New Frontier will be as tough on trade unions when new wage demands appear in a month or two.

Pressure on exports, too

The Kennedy Administration is following through on its promises to push "made-in-the-U.S.A." throughout the world. Last month you got the outlines of the plan to give American exporters at least as good export credit facilities as their competitors.

The government's Export-Import Bank is preparing for expanded effort. One idea is for Ex-Im to work through private insurance companies to offer a comprehensive system of political and commercial risk guarantees for exports sold on short-term credit (up to 180 days). Exporters will be able to negotiate directly with private insurers rather than with Washington.

Ex-Im also plans to work out with private banks and export credit companies programs for guarantees of medium term credits (up to five years).

The new policy includes removal of a ban on credit and guarantees for equipment sales to state-owned foreign oil companies (Mexico, Brazil, Argentina come immediately to mind) as well as allowing Ex-Im to finance exports of consumer goods (in the past financing has been pretty well limited to heavy capital goods). Moreover, Ex-Im will make advance commitments to U.S. companies, allowing them to bid competitively against foreign suppliers.

"The best part of these plans," a banker told *Business Week* magazine, "is that exporters will no longer be able to cry about not being competitive. They'll be forced to really sell their wares."

Americans abroad . . .

A consulting firm has made a new study of U.S. investment abroad—valuable because of its relative freshness. Analysing 316 new overseas operations set up between July and December 1960, Booz,

turn the page

Letter from "Foggy Bottom"

The U.S. Department of State is headquartered in an area known to its inhabitants as "Foggy Bottom." Here is a report from Business Week's correspondent on the new man and new mood in this precinct of Washington.

Secretary of State Dean Rusk is a discreet, basically conservative man. His modesty may reflect his humble origin as the son of a small farmer in Cherokee County, Georgia. But Rusk's bulky appearance, his mild, almost phlegmatic manner, are highly deceptive. He is light and quick on his feet, intellectually and physically.

Rusk has made it clear that he intends to be the President's principal adviser on foreign policy. And Kennedy is said to like his crispness and humor, to respect his decisiveness and knowledge.

Nonetheless, Rusk's highly polished professionalism makes him something of an enigma. One associate says frankly: "He is so smooth and efficient that it is a little hard to know just what he stands for." The best judgment: Rusk's reserve masks a drive for action.

The world, Rusk believes, is going through a revolution greater in magnitude than the emergence of European states from feudalism. In the face of this turbulent change, even a vigorous defense of the status quo would be a losing game. The only promising course of action for the U.S. is to try and lead the forces of change.

To carry out this task, the new administration must win the active support of a prosperous and somewhat complacent American people. For that reason, Kennedy and Rusk will move cautiously to shift the course of U.S. foreign policy. The most important shifts so far are some subtle changes in attitude and approach to policy:

1. Acceptance, even welcoming of so-called "neutral" regimes in underdeveloped countries, as long as neutralism does not mean pro-Communism. In Laos, the aim is to neutralize the U.S.-Soviet conflict in a "hot" area. The same aim applies to the Congo.

2. Identification of the U.S. with social and economic reform in underdeveloped areas. In the case of Latin America, Kennedy already has come up with a program matching this broad goal.

3. Active support for relatively democratic movements around the world. Implicitly, this means abandoning a policy of non-interference in nations' internal affairs, supporting "good" revolutions (and acting against ones that have gone "bad"—as in Cuba).

4. Open encouragement of efforts toward economic and political integration of regional groups, including closer U.S. economic integration with the other industrially-advanced countries.

5. A more serious, sustained effort to come to terms with Moscow on disarmament and arms control.

6. More diplomatic flexibility toward Communist China. The object is to win world support for a tough policy toward Chinese expansion, even at the risk of war. But if China behaves, Rusk will talk about compromises—even in the United Nations.

There are obvious risks to such policies. Sponsoring radical social change in Latin America, for instance, could bring the U.S. into bitter conflict with powerful defenders of the status quo.

U.S.-Europeans ties are a serious concern. But Rusk believes the U.S. cannot remain impotently on the side lines in the great anti-colonial revolution. Taking a position on the Congo or Angola is bound to anger Belgium or Portugal. Yet Rusk hopes to "elevate the sights" of the European powers to the common need for fruitful associations with former colonial areas.

In the Secretary's mind the new approaches to policy are defined by the forces at work in the world today. His task will be to carry out specific policies without arousing crippling opposition from people—at home and abroad—who do not understand these forces.

Allen & Hamilton of Chicago found:

1. More than a quarter of the operations involved companies with annual sales of less than $50-million. The consultants conclude that more small (by U.S. standards) companies are moving abroad.

2. Some 56% of the operations were set up in Europe—31% amid the "Six", 24% in the "Seven." Individual nations came off as follows: Switzerland, 11.4% (mostly non-manufacturing); the U.K., 10%; France 8.9%; Italy, Germany, Holland, Canada, and Mexico bunched between 6% and 7%.

3. Especially significant: Of the 316 operations, the largest share—40%—were joint ventures (usually with foreign partners), well ahead of wholly-owned U.S. operation (35%) and those with U.S. majority interest (only 8%).

. . . and turnabout

Most of the $5,000-million direct foreign investment in the U.S.A. has come from big European corporations. The time may now be ripe for smaller companies to set up manufacturing, according to international investment expert, Leo Model, senior partner of New York's Model, Roland & Stone.

The motive could be the same that lured the big European companies into the U.S., and U.S. companies abroad: to open new and profitable markets by being physically on the scene rather than depending solely on exports. Note that a German pump maker is coming to North Carolina, one result of an industry-promotion tour of Europe by Governor Luther Hodges, now U.S. Commerce Secretary.

Model suggests that foreign firms take a close look at the "depressed areas" of the U.S.A., especially in New England and the Middle Atlantic states. There are many communities with good transportation connections, a plentiful supply of water and power, a reservoir of willing productive labor.

Also, some will offer financial inducements to the new investor.

Tour of the month: I. Japan

Businessmen and traders fear Japan is developing a case of "creeping inflation" that could become acute under the impact of the government's ten-year program to double the national income (IM—Feb). Figures are not dramatic—a 4% rise in consumer price levels over 1959. But in Japan, where one generation can remember three inflations that wiped out all savings, the upward move is an extremely important political issue.

Some officials favor speeding up the present "liberalization" of the economy as an anti-inflation measure, including more imports. This would be on top of the already extensive freeing of trade. (The government's announced import budget for the half-year beginning in April stands at an all-time record $4,000-million, and some 300 machinery and vehicle items, plus various consumer goods, were last month added to the list of "liberalized" imports.)

II. Communist China

It is clear now: China is in the deepest economic crisis in the Peking regime's 12-year history, worse than has been indicated either by Western observers or by the Chinese Communist press.

Famine conditions exist through much of the land, and agricultural failures have forced the government to march 20-million people out of industry and back to the farm. Industrial plans are badly out of gear. Japanese visitors report seeing a 10,000-ton ship rusting at the quai for want of an engine, rolling mills closed down for want of parts. The government's foreign exchange position is in dire straits following emergency purchases of foodstuffs.

The Chinese are calling on the Soviets for massive aid. But they have precious little with which to pay for Soviet imports—and this weakens their bargaining position with Moscow. (The Chinese would like to see a stepped-up war policy in Southeast Asia, believing the area's rich resources are almost within Communism's grasp. The question last month, as Moscow and Peking were dickering over aid, was who was to call the tune in Laos.)

III. United Kingdom

After teetering of the brink of recession, the British economy may be expanding. Though the upturn is modest, it is enough to turn government attention to the possibility that restraint may be needed later (a domestic boom would be at the expense of badly-needed exports).

Happily, exports are looking up and the nation's sell-more-abroad campaign is picking up speed (IM—Mar,p3). Some observers suggest that imports have passed their peak, temporarily at least.

But Britain could still run into an exchange crisis in 1961. There is little likelihood of a heavy inflow of short-term funds from abroad to cover the trade gap; indeed, the net movement is likely to be away from London. Last year it was the dollar that suffered; this year it will be the pound.

IV. Venezuela

A new finance minister has taken over the delicate task of putting Venezuela's fiscal house in order and restoring business confidence. Fortunately the nation's foreign exchange reserves have risen, and things seem to be in hand politically. Yet investors continue to be wary.

What to do? The World Bank has just completed a study of the economy and handed it to the Venezuelans for study. There's a strong implication in the report that Venezuela may be following policies that could strangle the goose that lays the golden egg. The World Bankers recommend, among other things:

—that Venezuela reduce the burden of taxes and otherwise improve the competitive position of its petroleum. It should go slow with its new state-owned oil company, because it is too expensive and because it inhibits private oil investment.

—that government should push harder in education, housing, roads, etc., but stay away as much as possible from direct programs in industry and commercial agriculture. Venezuela can count on a lot of "vitality" in its own private sector.

—that Venezuela try harder to attract high-risk foreign private capital to its largely undeveloped (save for iron ore) mining industry. There should be tax and other incentives, more ore concessions offered, and a vigorous attempt to compete in world markets.

The bankers say Venezuela has an immense advantage in its position as an alternate source to the Middle East of petroleum supply. The international oil companies will pay a premium to maintain Venezuela as this source, the report says, but not if its oil prices rise above what the industry considers a reasonable premium.

turn the page

Letter from Brazil

Here in Brazil, they are calling it a "peaceful revolution". Since he took office in January, President Janio da Silva Quadros has undertaken what is best described as a series of heroic measures. His immediate goal is to save Brazil from financial collapse. But it is becoming apparent to Brasileiros that Quadros has something else in mind—nothing less than changing the nation's outlook on life.

"Only through work can a nation become great," Quadros has said. And he began his crusade where it was most needed. He cut the government payroll by 10,000 (mostly last minute appointees of outgoing President Kubitschek). Government engineers and doctors suddenly lost their 40% bonus. Government offices were put on a seven-hour basis, replacing the leisurely 11-to-5 routine. A vendor of cosmetics describes the new atmosphere: "The girls used to flock around when I opened my samples. Now they dare not even leave their desks."

Business considers Quadros' boldest measure his crackdown on foreign buying. The new president inherited dollar commitments of $3,800-million, or nearly twice Brazil's annual foreign currency receipts. He has practically eliminated preferential exchange rates for the government's own purchases of foreign commodities. Private imports must now compete for foreign exchange on the open market; by raising their cost, Quadros hopes to reduce imports. The effect has been immediate and drastic: the cruzeiro jumped from 230 to over 280 to the dollar; the price of gasoline jumped 80%.

Quadros has taken a brave new stance in foreign affairs. He has reopened diplomatic relations with the Communist bloc; he has assumed an attitude of "correctness" toward the U.S.A. It is noted here that Quadros refused to join in sanctions against Cuba; in fact, he has shown a keen interest in Castro's land reform program.

What does it all mean? many people ask. Where is this young (44) man with the sad visage and droopy moustache headed?

First of all, with 40-million bags of coffee in storage, and another 40-million bags on the trees, Quadros wants to open all possible avenues for trade. Observers here expect a rash of barter deals with Iron Curtain countries. Political strategy is involved, too. Quadros hopes to appease Brazil's leftists—a shift to the left externally may partly compensate for a shift to the right internally.

Quadros believes that nobody gains when Brazil appears to truckle to Washington. There is a feeling here that "Quadroism" is the best antidote to "Castroism", that Quadros is actually quite in tune with the U.S.A.'s new approach to foreign policy (see page 2).

As one clue to Quadros, visitors to Brasilia point out that on the president's office walls hang pictures of Nasser, Tito, and Abraham Lincoln. Quadros is also an admirer of Nehru—even occasionally wearing an Indian tea-planter costume.

Quadros believes that Brazil is potentially a great nation—and even the most jaded observer of Brazil would agree with him. He wants Brazil's voice to be heard in world affairs. Apparently, he hopes to make it heard in the "third-force" Afro-Asian bloc. But, his point of view appears more "inter-American" than neutralist."

Quadros' style—at home and abroad—is disquieting to many. He is a strong executive, given to issuing blunt directives. ("I will have to apply drastic and harsh measures. I am indifferent to applause or abuse.") A reaction from one businessman: "If Quadros really straightens this country out, he will be tremendously powerful. Both he and the public may start thinking Quadros is 'the indispensable man'."

V. South Africa

The Union becomes a republic at the end of this month. While there is outward enthusiasm and talk of the "sparkling state" of the economy, the optimism masks a gloomy sense of foreboding—especially among businessmen.

Far from sparkling, the economy is beginning to lag, and has reached a point where further disinvestment would create an intolerable strain. Last year's net outflow of private capital was $243.6-million; the reason why the flow has tapered off may be that most of the really mobile money has already left. No sudden collapse is likely: The economy is relatively strong, still enjoys the advantage (though fading) of Commonwealth preferences and close trade ties with the UK. With rising gold sales and import controls, South Africa's exchange position may be maintained.

It is the prospect of a gradual withering of investment and trade (particularly it boycotts, promoted by Afro-Asian nations and others, spread) that worries businessmen. They doubt that other areas—Europe, the U.S.A.—will take up the slack with expanding investment and trade, despite South Africa's reputation as an attractive market. They question brave talk that the country can finance its massive development needs at home. They fear that the black population, which has tasted better living standards in the past two years and is unwaveringly hostile to the government, will not accept kindly the belt-tightening involved in a "go-it-alone" policy. A new call for "non-cooperation" has gone out, an attempt to force a new democratic constitution.

What hope? There is growing interest in the possibility of a more moderate coalition government with a modified program of "separate" development and a more liberal deal for non-Europeans. This might appear if the Verwoerd regime stumbles—a severe economic downturn might topple his administration. But the hour for moderation is late.

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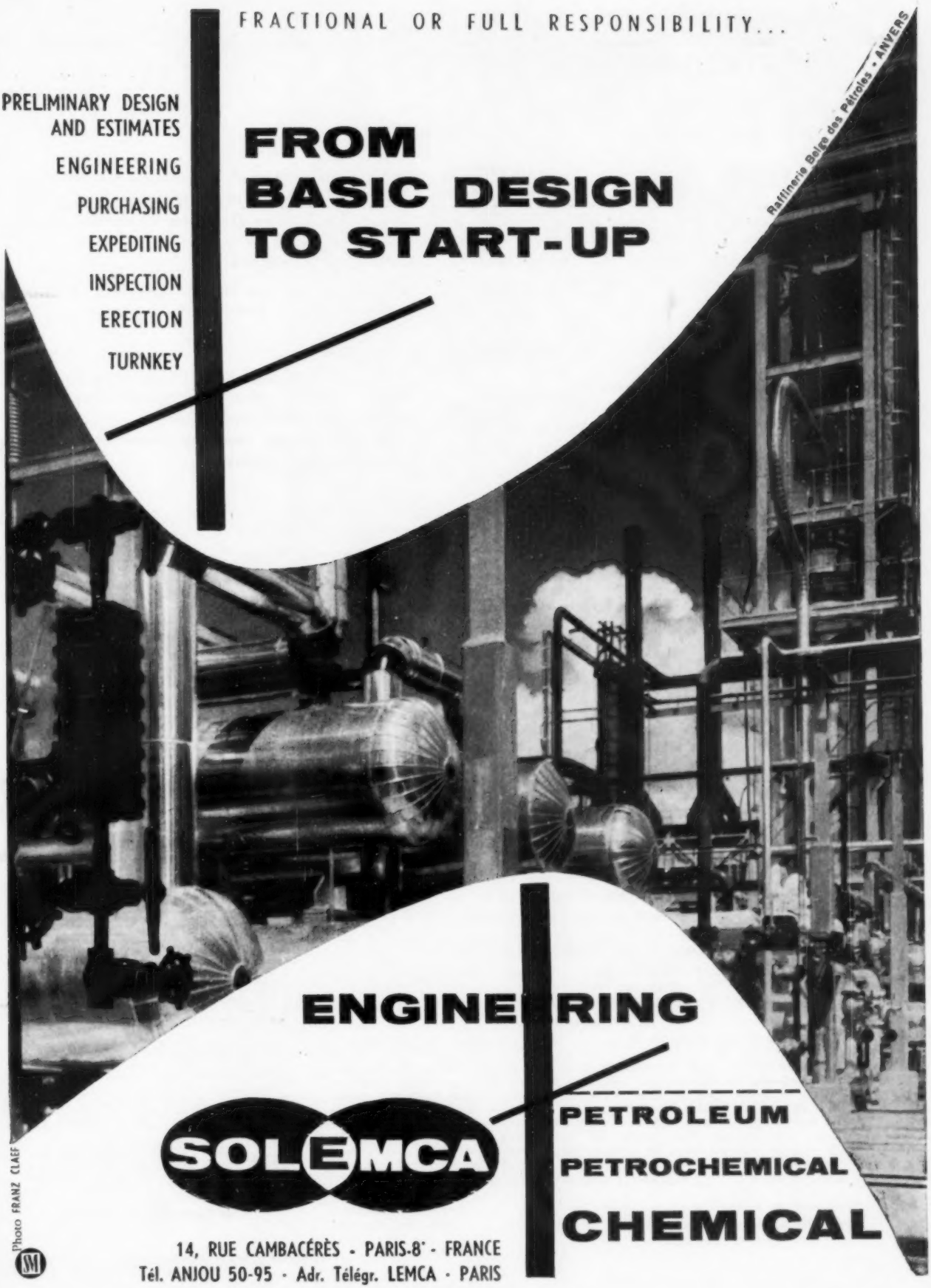

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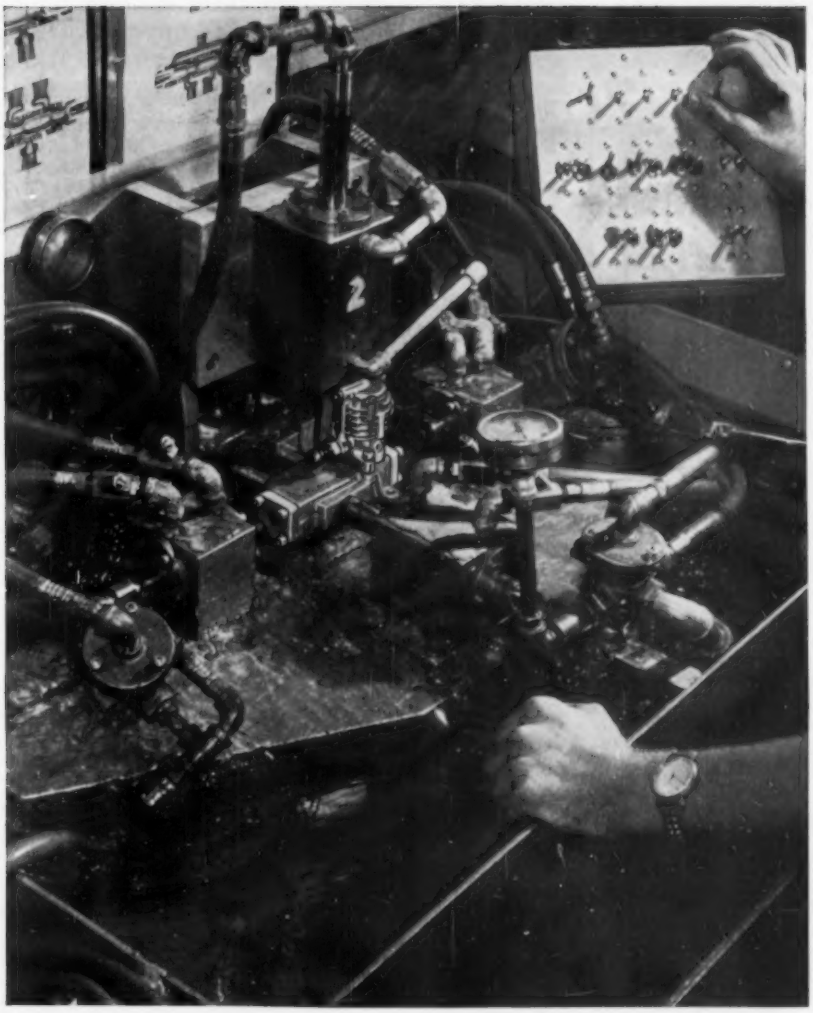

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● READERS' REPORT

Opinion from Cuba

Sir . . . As a subscriber to INTERNATIONAL MANAGEMENT, I read your March issue and saw the invitation to the readers to write "your suggestions, criticisms—even your compliments." The comments that I enclose are commentaries on the editorial "Something to think about" on page 8. I am sending the following notes, feeling that as a follower of economic matters and knowing the criterion of a Latin American I could contribute to Mr. Kennedy's request that Latin Americans contribute to his Plan.

The editorial says that the ideas of Alfred C. Neal, president of the Committee for Economic Development, can be boiled down to: "One-way free trade." The Editor says that they may be considered as "utopian." On the contrary, they are ideas that require immediate attention, especially at the moment when Mr. Kennedy announced his impressive Plan for Latin American Progress.

That the North American industrialists accept fully the idea of "multilateral assistance," especially with reference to the countries of Latin America, is neither "utopian" nor can the result be uneconomic.

Traditionally the tariff policy of the United States, as it applies to Latin America, was based on the principle of investment exclusively for the production of raw materials. The raw materials received certain customs privileges in exchange for allowing the entry of goods manufactured in the United States. If the condition was not accepted, it supposedly eliminated all possibilities of investments in light industry, and its complementary products in Latin America. Cuba, for example, had to fight openly at Annecy to develop a textile industry. Since 1925 Cuba started a campaign of national dimensions to set up a small manufacturing industry that would take care of its needs as to socks, dyes, soaps and detergents, cosmetics, medicines and other similar lines. Thanks to the profitable margins obtained from its great export product, sugar, it could establish a base for its industry so that at length it was no longer considered one of the "underdeveloped countries." Nevertheless, Cuba could not even send its excess production of those lines to the Central American countries, because of the tariff regulations of those countries, which were set up to protect the North American exports.

If Mr. Neal's utopian ideas were followed in Latin America, if the U. S. allowed Latin America to enter its consumer market, not only in raw agricultural products but also manufactures, the economic result would be: (a) greater investment in light manufacturing industry by North Americans and Latin Americans, (b) greater purchasing power in the United States for the products of its own industry in general, (c) raising of the standard of living in Latin America, (d) better political relations, (e) migration to Latin America of North American technicians for the development of those industries, (f) migration to the U. S. of Latin American technology students, (g) consolidation of Latin American currencies, making possible for those countries the purchase of such articles of comfort as automobiles, refrigerators, air conditioners, electric and gas kitchens, and other appliances.

Consequently it does not seem that Mr. Neal's ideas are utopian. For many decades Latin America has resented being considered by North American industrialists as nothing but a simple provider of sugar, coffee, cocoa, bananas, minerals, rubber, etc. The policy of "One-way free trade" must not be conceived as a bilateral policy between the U. S. and certain underdeveloped countries, but as an economic complex for mutual benefit. Latin America does not desire an "assistance treaty" but a clear understanding between governments and industrialists in the United States that it has passed the simple stage of a provider of raw materials, and that now it is ready to become an "associate" in the industrial development of the Americas.

Latin America has heard with attention Mr. Kennedy's call and believes that it can, and must, participate not only in receiving the benefits of the Kennedy "New Deal" but also contributing with its organizing ability, its energetic men, its supply of labor, its artists and designers, its scientists —that is, it can count on a populace that is not as illiterate or as poor as some reporters and "tourist publicity" make it out to be.

Dr. Carlos M. Raggi

Havana

Taxes, Taxes

Sir . . . I refer to the statistical data presented on page 63 of your March issue. The tax figures, especially personal income taxes, would be more informative as to the actual state of affairs if they showed the percentage actually paid by those persons in the highest tax bracket. As you are aware, the persons in the 91% bracket in the U. S. actually pay an average of 51%, due to various deductions and credits, and other arrangements. This figure of 51% is contained in the official reports of the U. S. Internal Revenue.

Inasmuch as most of the other nations on your list, with nominally lower rates, actually collect a higher percentage due to lack of provision for the many deductions allowed in the U. S., your data are misleading. I would like to see a presentation showing actual rates collected sometime.

Rinehart S. Potts

Levittown, New Jersey

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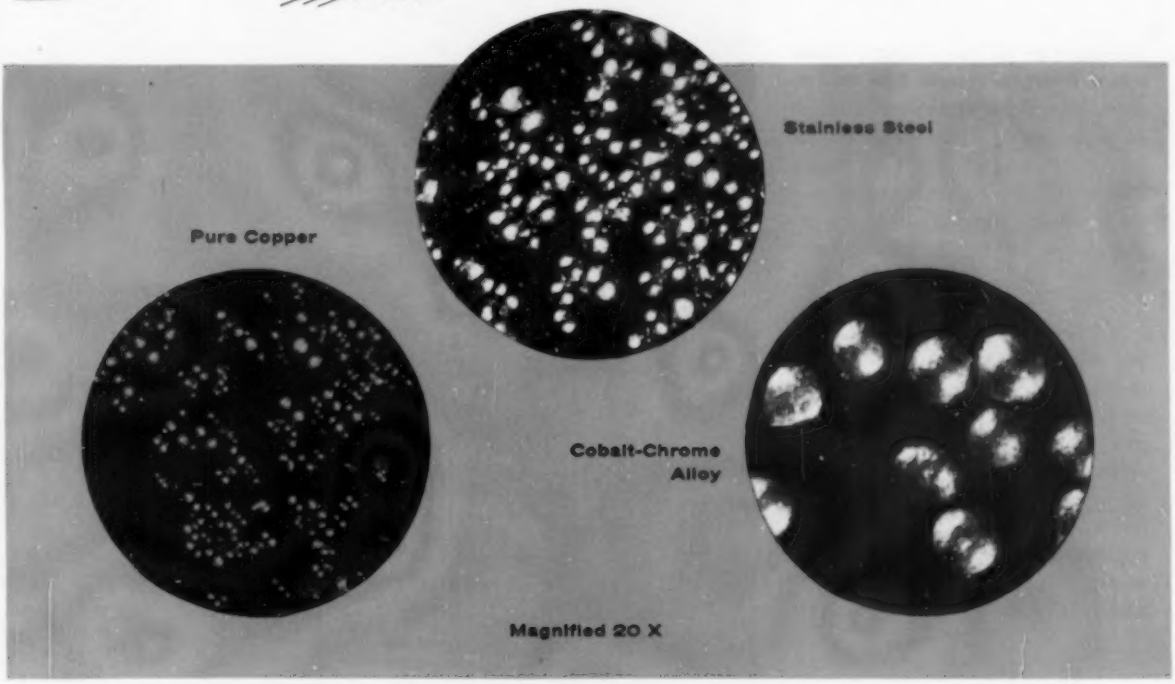

A new metal atomization process produces fine, pure, high-temperature metal and alloy powders of accurate particle size and shape. It was developed by Federal-Mogul Division of Federal-Mogul-Bower Bearings, Inc. at their Research Laboratories in Ann Arbor, Michigan.

A very important part of this process is the ability of the Tocco melting equipment to produce clean, molten metal, at the exact temperature required, quickly and efficiently. Three interchangeable Tocco melting furnaces used with the Tocco 100 KW 3 KC motor generator and furnace control provide the versatility necessary to enable Federal-Mogul to process many different metals without expensive, time-consuming change over.

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Allis-Chalmers

NEWS AND VIEWS OF THE WORLD AT WORK

Manufacture of the Western Hemisphere's largest cement kiln was recently completed and shipment made to Argentina by Allis-Chalmers. One of the 59 sections is shown being loaded at Milwaukee aboard the new cargo vessel, Mormacpride, on her maiden voyage via the St. Lawrence Seaway.

Allis-Chalmers is unique among world companies serving the cement industry. *Within our own organization* we produce a greater range of equipment for cement making than any other manufacturer. We can furnish the complete plant, from pit to packhouse. Allis-Chalmers' co-ordinated engineering service means a single source for planning, manufacturing and installation.

For investments in machinery, you can rely on Allis-Chalmers quality in design, materials, workmanship and performance. Allis-Chalmers has plants, representatives, distributors and licensees throughout the free world to furnish you top-quality machinery and to render effective service.

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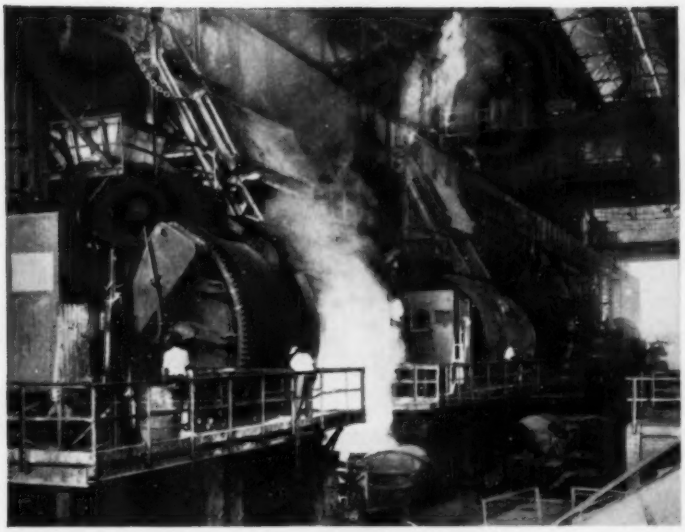


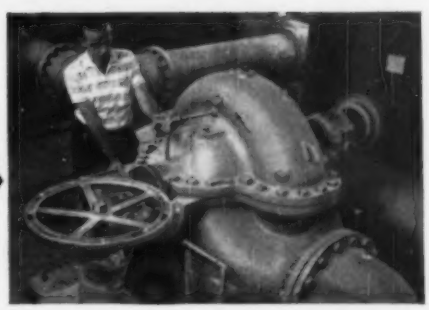
One of the world's key mining companies, Union Miniere du Haut Katanga of the new Republic of Congo, is a major user of Allis-Chalmers mining equipment. Included are crushers, vibrating screens, pumps, motors, converters, smelters, and leaching and electrowinning operations. Illustrated are Allis-Chalmers converters at work at the Lubumbashi copper smelting plant.

There are few more difficult road-building projects than in the North Island of New Zealand. Here is an HD-21 crawler tractor at work on a 4½-mile section through mountains, taking in stride such tough excavating as ripping, dozing, removing massive matai, rimu and white pine stumps.

This TL-14 front-end loader is used by a Mexican chemical company to move raw material to hoppers and the finished product to trucks. From 60 to 100 cubic meters an hour of copra and coquito—a small palm nut—are handled for the subsequent production of oil for soap and certain chemicals.

A new residential city of 2,000 homes is rising on the hills overlooking Kingston Harbour, Jamaica. Fleets of Allis-Chalmers motor scrapers, crawler tractors and rubber-tired front-end loaders prepare the site, helping to move more than a million cubic meters of earth.

Residents of Brasilia, new capital of Brazil, will have their water supplied by Allis-Chalmers pumps. Machines included in this new water works installation are two pumping units, each consisting of two centrifugal pumps in tandem; motors to drive the pumps, and starting switchgear.



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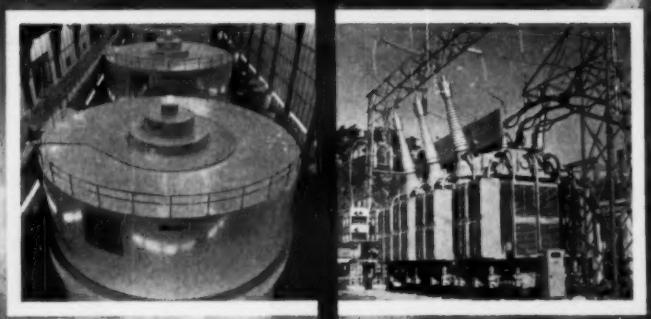

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Among the plans on the drawing boards are plants for decontamination of radioactive waste water from reactor installations. Years of research and development have gone into this, the newest of the process engineering fields for PINTSCH BAMAG to apply its tried and trusted talents. They have already been crowned with worthwhile success.

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Autos Go Looking for Drivers

A hot battle for markets is being waged by the world's old and new automakers.

SIGNS OF SPRING in the U.S. automotive industry: With the robins came reports, at first hesitant, then more confident, of an upturn in sales. Then, last month, the International Automobile Show in New York clearly demonstrated that the world's automakers had not lost their marketing elan—nor the ability to design attractive new models for jaded consumers. Finally, McGraw-Hill's *The American Automobile* this month releases its latest census of motor vehicles (table below), reminding the industry that for all its troubles, the world market grows and grows.

None of these regular events would have been so important had not the industry been so hungry for cheerful news. U.S. automakers —and their foreign competitors— had come through a dismal winter. Prospective buyers had kept away from auto showrooms in droves, chilled both by cold weather and recession fears.

• **Imports Hurt**—The U.S. market has been a cruel disappointment to automakers in Britain, France, and Italy. These countries especially, and others too, had been counting on American consumers to help them pay for a part of their ambitious expansion plans. But last year the American consumer turned shy, and—on top of that—the U.S.A.'s own smaller, "compact" cars made a deep dent in the imports' sales.

Detroit's success in stopping the imports raised broad fears. Could Detroit turn the same trick in underdeveloped areas? And, through subsidiaries, in Europe?

Was the world auto industry expanding too fast? Each country was building up capacity to supply growing local demands, but each also expected to export part of its output. Had the several countries together built too much capacity?

I. Anatomy of Hope

Warm days brought confidence to automakers—in Coventry, England, as well as Detroit, U.S.A. The depressed British industry suddenly picked up late in March, helped by unseasonably warm weather and an easing of credit controls. Autoworkers stopped working short weeks, and at two British companies—Vauxhall and Ford—they were back to overtime.

U.S. factories also began perking up, but the exact state of the industry was obscure during the early days of April. Spokesmen for each of the Big Three producers (General Motors, Ford,

THE WORLD ON WHEELS—1961

	VEHICLES IN USE JANUARY 1961				Vehicles	% Growth since
	Autos	Trucks	Buses	Total	1950	1950
Africa	1,786,100	762,100	38,800	2,587,000	1,114,700	132%
Asia	1,578,400	2,032,200	218,200	3,828,800	703,200	445%
Oceania	2,547,200	967,200	14,200	3,528,600	1,617,000	119%
Latin America	2,543,800	1,781,600	152,200	4,477,600	1,722,500	160%
West Europe	22,297,600	5,298,200	237,200	27,833,000	8,500,100	228%
World (excl. U. S., Can., Comm. Bl)	30,753,100	10,841,300	660,600	42,255,000	13,657,500	204%
United States	61,270,000	12,050,000	270,000	73,590,000	43,774,000	68%
Canada	4,035,000	1,189,300	20,000	5,244,300	2,195,000	139%
World (excl. Communist Bloc)	96,058,100	24,080,600	950,600	121,089,300	59,626,500	103%
Communist Bloc	1,193,400	3,952,000	78,400	5,223,800	3,574,000	47%
World Total	97,251,500	28,032,600	1,029,000	126,313,100	63,200,500	100%

Source: The American Automobile

and Chrysler) began predicting good days ahead—one even suggesting an auto boom by the second half of this year, based on what he termed "time-tested indicators." But it was not clear how much of this confidence was based on hard sales, and how much on wishful thinking.

By the end of the first quarter, Detroit was producing a weekly total of 103,123 cars, the best performance since January 14. The gain brought March output up to an estimated 409,400, far above February's 362,767. March sales of 500,000 pulled dealer inventories down below the 1-million mark.

• **On Display**—A push for sales was seen at New York's fifth annual International Automobile Show, where manufacturers from 10 countries showed 400 models ranging in price from $900 to $25,000 and began selling them briskly from the exhibition floor.

Several cars made their world debut at the show. France, battling hard to stay in the American market, displayed an improved Citroen and the Peugeot 404. From Sweden came a remodeled Saab; from Britain, the eye-catching Jaguar XK-E.

• **Counting Hoods**—Even more heartening to automakers is *The American Automobile's* census, which shows that world vehicle registrations went up 7-million from January 1960 to 1961—only a shade less than the 7.1-million growth of the previous year. The world's vehicular population has doubled in the last 11 years.

Note how the vehicle population has grown in various countries during the past 11 years. In the U.S., starting at a high base, growth amounted to 68%. In Canada, it was 139%; in Latin America, 160%. In Western Europe, growth in registrations has amounted to a booming 228%.

II. Long and Short Range

These figures are significant for both what has been done and what remains to be done. Europe, for example, has come a long way—but it still has only a single car for every 10 people, while the U.S. has a car for every three people. And Latin America has only one car for every 90 or 100; Asia, one for every 1800.

The scarcity of vehicles in Africa, Asia, Latin America, is challenging to automakers everywhere—but it does not indicate where individual makers will be selling their cars later this year. Nor does it tell what companies will survive in the coming, more intensive struggle for markets.

• **Best Market**—The fact is that although all the world needs more vehicles, the best market is the industrial areas—and specifically the U.S.A. All automakers know this, and until two years ago, aiming an important part of their effort at the U.S. market seemed to make sense. Volkswagens, Renaults, and other imports were being eagerly grabbed up by American motorists.

All of this changed late in 1959, when Detroit began to bring out its own small cars—the "compacts". Although at least 70 different imported vehicles are still being marketed in the U.S., only the Volkswagen seems to be really gaining today. Most of the others have been badly hurt.

British and French manufacturers have suffered most, because their expansion plans had been based so heavily on increased North American exports. Now companies in both these countries —and in Italy, West Germany, Sweden, Japan—are being forced to revise their marketing plans, especially as they concern the U.S. market. They know that together they probably won't be able to sell this market more than 450,000 cars this year.

• **Still Expanding**—None of these countries have shown any desire to cut down their plans for expanding production capacity. The British industry, for example, will be continuing its five-year, $780-million program for increasing production capacity from 1.8-million to about 3-million vehicles. Japan, Germany, France and Italy are doing the same.

But their major marketing effort will be aimed at selling more cars at home—and to each other.

Europe looms as the world's greatest growth market for automobiles—and other comforts—in the years immediately ahead. Experts say that it is moving steadily toward the day of a "car for every family."

III. European Battleground

And practically every automaker on the continent, in Britain, in the U.S.—and perhaps even in Japan—appears eager to help Europe attain that goal. The situation foreshadows a formidable competitive struggle ahead, in which some of the companies are bound to get hurt.

• **Tariff Cuts**—The lowering of tariffs between members of the Common Market will hasten the battle. Initial tariff changes have already stimulated Volkswagen to begin an aggressive sales campaign in France. Meanwhile, France's Citroen and Italy's Fiat are gaining in West Germany.

And if the breach between the Common Market and EFTA is healed, the British industry will move in more strongly, battling French, German, and perhaps even Italian and Swedish companies on their own territory.

That is not saying anything about the U.S.A.'s Ford and General Motors. The Detroit giants make no secret of their plans to seek a larger share of the European market through overseas subsidiaries and export of "compacts."

Observers are wondering if the postwar battle in the U.S.— in which over 10 different automotive nameplates disappeared— will be repeated in Europe. When the smoke of battle clears, will General Motors and Ford stand alone with a few big European companies — perhaps Germany's Volkswagen and Daimler-Benz, France's Renault and Citroen, Italy's Fiat, British Motor Corp.— as sole suppliers of the expanded European market?

• **Present Efforts**—But such a prospect is not immediately ahead. Tariffs still exist between countries in Europe, and companies now are putting their major effort into expanding local sales—and getting authorities to create a better environment for installment buying and marketing operations.

The British industry, for example, is putting pressure on its government to reduce the 50% automobile sales tax. And French automakers are urging a cut in the price of gasoline—about 20¢ a liter —so that their countrymen will find more pleasure in motoring. ●

Despite progress centered in modern cities (Monterrey, right), Mexico feels the mounting pressure of poverty (above). The nation must move faster—and time is of the essence.

The Men in a Hurry in Mexico

WHAT'S GOING ON in Mexico? Is it still the nation many consider a model of "balanced development", profitable haven for foreign capital, prize pupil of the International Monetary Fund and possessed of a credit rating second to none among developing countries?

Or is it hurtling down the road toward anti-foreign socialism propelled, in the words of a disgruntled foreign investor, by a "bunch of Reds in government who want to run everything down to shining shoes"?

For more than a year, the debate has been rising. It reached a peak when the government announced its new mining law (IM—Apr, p3), the latest step in the effort to put control of foreign-owned business into Mexican hands, public or private. Discussion is timely: U. S. President Kennedy's new "alliance for progress" aid plan puts a premium on change and reform to speed Latin American development, and all American republics are carefully watching the Mexicans. So are developing nations as far away as India which, according to a recent Indian visitor in Mexico, faces many parallel problems in its drive for higher living standards.

• **Perspective**—Most of the participants in the Mexican debate would probably agree to the following propositions:

Mexico has indeed made immense progress in development, and has maintained economic and political stability while doing so. But . . .

. . . Mexico is probably in less good shape than its sleek buildings and factories and emerging urban middle class would indicate. The ragged edge of poverty is apparent everywhere; distribution of the burgeoning national income has been lopsided and many Mexicans are hardly touched by progress. Outside the cities (where business development has been concentrated), the health, education, and transport needs of an explosively-growing population of 35-million are far from satisfied. Combine this with . . .

. . . Mexico's 50-year-old revolutionary spirit, fanned to glowing intensity by the "winds of change" sweeping the Western Hemisphere. The impact of Cuba and Fidelismo leads Mexicans to say, "If we do not give our people a better life faster they will explode in ten years and take it themselves." So . . .

. . . The result is a feeling of urgency that Mexico must move swiftly to blast away the shortages and bottlenecks impeding growth.

In the view of many important Mexicans — including President Adolfo Lopez Mateos and an influential corps of young economists (page 18)—government must play a much larger role because private capital, domestic and foreign, has not gone far enough, fast enough, in supplying the resources needed. These men-in-a-hurry believe their nation is mature enough, wise enough, stable enough, and rich enough to vastly expand government initiative without courting disaster.

• **Record**—The drive has been building up since Lopez Mateos took office in late 1958. One unhappy Mexican businessman claims Lopez has nationalized more in two years than Gen. Lazaro Cardenas (he expropriated the foreign oil companies in the 1930s) did in six.

In 1959, the government announced that all petrochemical production would be reserved to the state. It also bought an auto assembly plant from its Japanese owners and an airline from Mexicans. In January 1960, it bought a steel company from U. S. interests, putting 60% of steel production in government hands. A year ago it purchased American & Foreign Power Co.'s Mexican utilities and, scarcely pausing for breath, a few months later acquired the big Mexican Light & Power Co., putting 95% of electricity into federal hands. Late in 1960 it bought out two cinema chains ("to break a monopoly"). Altogether, the government controls some 360 companies worth $3,200-million, a hodgepodge of big businesses and small, many of them taken over because they had fallen into difficulties. It is estimated that government business account for 15% to 20% of gross national product, perhaps more.

Possibilities for future nationalization include remaining private airlines, the telephone company (already acquired by private Mexican investors), bus companies, possibly mines if their private "Mexicanization" shows signs of failing.

At the same time, government is pressuring foreign investors to convert to Mexican control and management, and is discouraging new companies that are not 50% owned by Mexicans. And partly be-

cause it does not have the money and partly because it wants to encourage local private business, the government is literally pushing Mexican capitalists into industrial fields that they would not consider previously.

• **Tact**—The measures are tactful, based on purchase and persuasion. To get businessmen to do what it wants, government uses tax incentives, import licenses, government control of a large share of industrial and commercial financing, and political pressure. For its own purchases, the government gets money from tax revenues, income (when there is any) from existing public enterprises, private loans from abroad (such as Prudential Life Insurance Co.'s $100-million loan last year), and from foreign government and international lending agencies.

The Mexicans seem to have clear goals—a mixed government and private economy almost entirely controlled by Mexicans. But the approach seems pragmatic and expedient, not doctrinaire. And while the future role of foreign private capital has not been too carefully thought out, Mexicans say they need it—so long as it is subordinate to national interests. They would prefer loans, government to government. But they recognize that direct investment will be useful in much light manufacturing, distribution, and other industries.

• **Drive**—Much of the intellectual rationale for present Mexican policy is coming from a rising group of government economists (some of them are pictured at left). These "young Turks" believe that an economy such as Mexico's will move faster with government in a commanding role—socialism, if you will, but with a strong leaven of capitalism. They believe private capital has—so far—failed to measure up to the task, and they think private business in Mexico has not yet displayed adequate "social responsibility for the collective well-being of the country." Thus government must control the basics of the economy, and as a corollary, foreign capital must be domesticated by teaming it with local business.

To this argument many critics point out that any government hates to let go of its businesses even if private enterprise is able and willing to do the job—and add that government planners hate to let go of their powerful jobs. And they suggest that the government's grand gestures have been dictated more by politics than economics—the desire to put on a good show for the leftward-leaning masses.

The young economists will admit that politics play a part. But talk to those in positions of responsibility in government and you sense a genuine idealism, and a feeling of urgency. Most have been trained in the U.S.A. and Europe as well as at home; they combine a strong social conscience with devotion to

Mexican Economists: *What They Say*

"The foreign investments we have are sending out as much money as new investments bring in."

MANUEL BRAVO JIMENEZ, 43, trained at Columbia (U.S.), experienced in Europe, now top industry adviser to Bank of Mexico.

"You must understand that a developing economy must be handled differently."

HORACIO FLORES DE LA PENA, 36, author, professor, outspoken chief of investment dept. of ministry that runs government businesses.

"What's badly needed is a priority program to break bottlenecks and speed development."

VICTOR URQUIDI, 41, London-trained, influential in Latin American economic matters, professor, consultant to Bank of Mexico.

"We—the government—must do more for agriculture—and could use foreign financing."

GUSTAVO ROMERO KOLBECK, 37, investment director of President's own secretariat, experienced in U.S. and Mexican government work.

"We don't want our sons to be employees of foreign companies—we must develop our own industry."

ALFREDO NAVARRETE, 44, U.S. universities, general manager of powerful Nacional Financiera, government's development bank.

their jobs; they are well-traveled (some of them have been loaned to other developing countries). Their influence is growing. While politicians still run the show, they are listening more to what the economists tell them (though not enough, to hear the economists tell the story).

These young men are excited by their challenge. And they are impatient. One of them, comparing Mexican economists with their U. S. counterparts, comments wistfully that "the North American economists can be concerned with tuning the engine, while we have not even got the engine built yet."

They do not all agree on precisely how to build Mexico's economic engine. Some who believe in rapid government development at (almost) any cost try to push their conservative brethren into daring assaults on agricultural and industrial bottlenecks; the conservatives in turn arise in opposition to drastic schemes. Out of this ferment is coming much of the economic thinking in Mexico today.

• **Reaction** — Many businessmen distrust the young economists (though businessmen sometimes go to them for advice), and deplore the direction Mexico seems to be taking. They fear government has tried to move too fast, and powerless to reverse course, will stagger under the weight of expanding state enterprise. They add that the "Mexicanization" drive will discourage foreign investment; indeed, it may already have inhibited some expansions and new investment from abroad.

The government, concerned about business confidence, is trying its best to reassure both domestic and foreign private capital. Anti-business talk is toned down. As a result, Mexican businessmen have indicated they will give stronger support to the government and many foreign investors (mainly U. S.) show signs of adjusting to the rules of the game—preparing to Mexicanize by taking on local partners, selling stock, shifting production away from lines in which the government is interested. With fingers crossed, they are counting on continued progress, and Mexico's enviable past record of maintaining a balance between the extremes of left and right. ●

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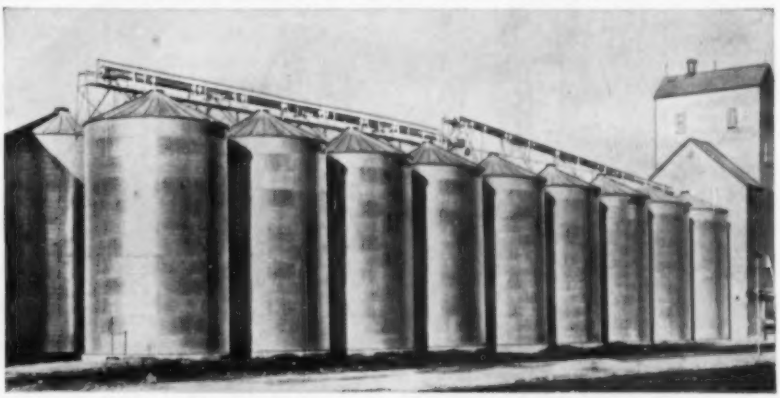

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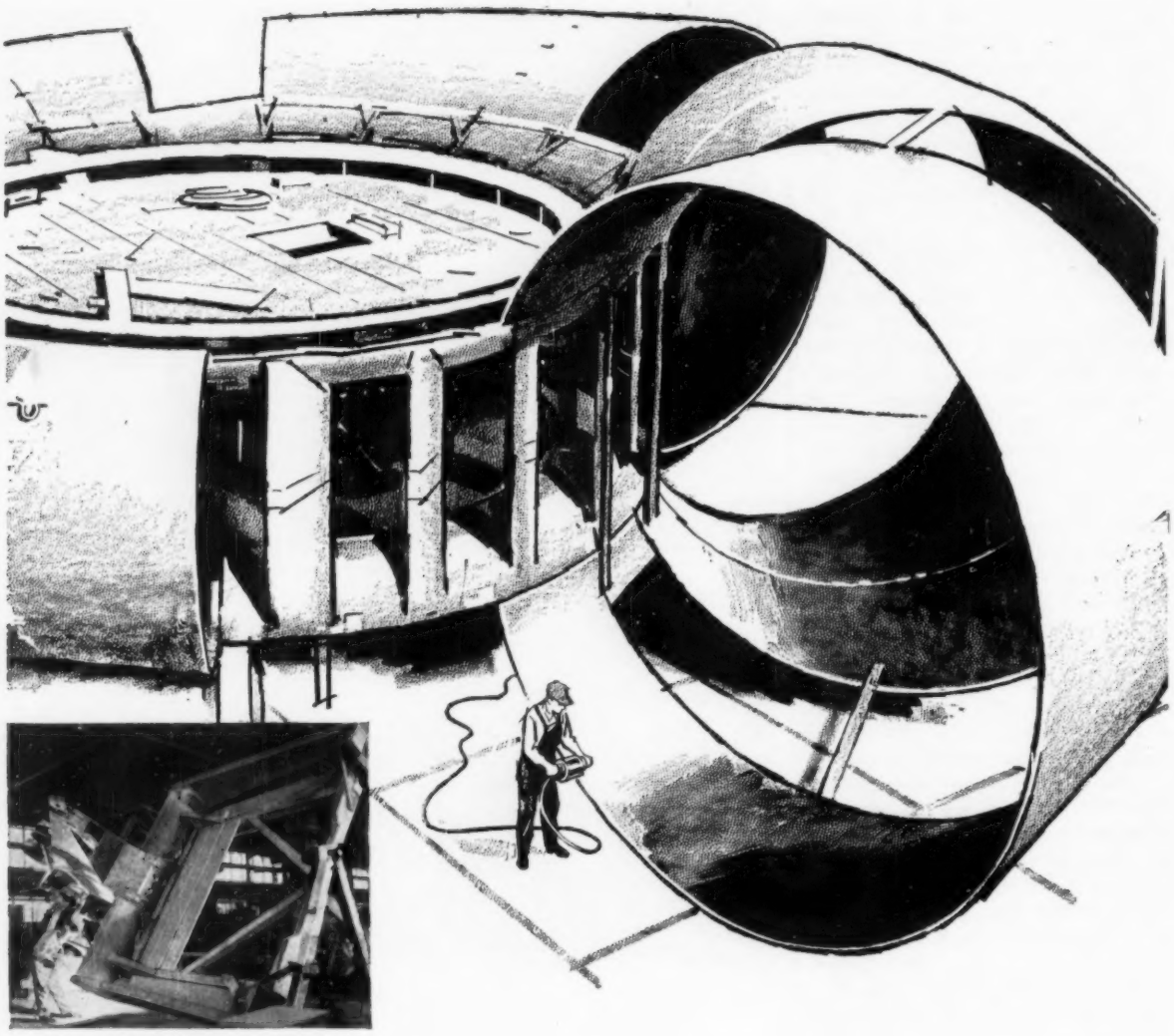

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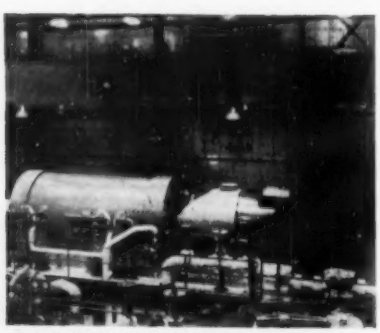

EFFICIENCY IN CANADIAN UTILITY OPERATION is assured Manitoba Hydroelectric Board's new Brandon and Selkirk generating stations, through use of USS National Electric Furnace Alloy Steel Pipe for high-pressure steam lines between generators and turbines.

The great scroll case of a modern hydroelectric turbine is a very special application of today's specialized steels. This curved metal wall must withstand savage pressure from gushing water, as well as punishing abrasion. These shells utilize USS "T-1"* Constructional Alloy Steel for such hard service. This advanced steel's 115,000 psi minimum tensile strength permits shell walls to be 50% thinner, much lighter than carbon steel walls would have been, thus reducing materials and over-all costs at the same time it adds service. Even foundations for the casings have been made lighter and less expensive as a result. Savings and service go together in such advanced designs, with the advanced steels from United States Steel Export Company, 100 Church Street, New York 8, N. Y., U. S. A. *Trademarks

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● MANAGEMENT

Up-to-date information provides the only sound basis for business decisions. That is why West Germany's *Konjunkturtest*, a method of surveying business sentiment, has spread to 10 nations. Here is how 8,000 German companies get . . .

Business Data—Days Faster

ONCE EVERY MONTH, a top executive in 8,000 West German companies takes out a pencil and checks his answers to perhaps 20 questions on a printed form that arrived in the mail that morning. Questions like these:

"Our sales in comparison with the previous month were (check one)—larger . . . about the same . . . smaller . . ."

"We judge our present volume of inventory to be—too large . . . sufficient . . . too small . . ."

It takes an average of about 10 minutes to complete the *Konjunkturtest*, or survey of business sentiment. No figures are called for, only the executive's honest judgment. Then the form is returned to where it came from, the IFO—Institut fuer Wirtschaftsforschung (Economic Research) in Munich. Within a couple of weeks, the respondent receives a report in a standardized graph form (*Konjunkturspiegel*) of business conditions and sentiment in his industry—days, weeks, even months before any official statistics are available.

With this information added to his general knowledge of economic conditions, the executive is in a much better position to make short-term business decisions. When the question of value was recently put to the businessmen, there was an overwhelming response that the survey results are useful—and actually used—in short-term planning.

• **Cooperation**—Quietly and efficiently, the IFO-Institut has been carrying on its monthly surveys of business sentiment for a full decade. It all started when the Institut's economists needed information on current business conditions. There was nowhere to go but directly to the business community.

The IFO-Institut did not originate monthly surveys of business sentiment (the U.S.A.'s National Association of Purchasing Agents for example, has been conducting monthly surveys since 1931). But the Munich institute did originate the "feedback" system—sending a fast report of the survey results back to the respondent—as a means of winning the cooperation and confidence of its respondents.

There was much skepticism at first. It was doubted that the German businessman would give honest replies to questions about his company's affairs. But when asked only for his judgment of the recent past and future, with no figures, the businessman came through. The reason is not hard to find. The businessman himself is primarily concerned with relationships rather than figures—direction of change and rate of change rather than amounts.

• **Matters of Interest** — The Institut limits its interest to questions with a direct bearing on current business conditions: production trends, product demand, turnover, inventory, prices, expected new orders, etc.

In addition to the regular monthly questions, the *Konjunkturtest* sometimes asks for judgments on special problems such as the labor supply, export prospects, etc. And on occasion, the Institut has fulfilled special requests and asked for information on packaging costs, advertising expenditures, credit conditions.

Now underway is a "sister" program—a periodic probing of business investment plans. This venture should prove equally useful to cooperating executives. Regular surveys of capital spending plans by U.S. companies, conducted by McGraw-Hill and others, are widely used by American business and government planners.

For its benefit, the Institut is able to keep a finger on the economic pulse. Institut researchers also get a mass of information that can be used in special studies of economic behavior. In some industries—shoes, for instance—it is possible to trace the business cycle in its tortured passage through distribution channels. The Institut sees a great future for the *Konjunkturtest* as an economic research instrument.

• **Widely Used**—The *Konjunkturtest* idea has spread to 10 nations. There are some 14 organizations—banks, economic institutes, and government agencies—conducting similar surveys of business sentiment. It is safe to say that at least 35,000 businessmen now participate in the *Konjunkturtest* type of survey—monthly or quarterly—in Europe, Scandinavia, South Africa, and Japan.

In many nations, of course, surveys of business sentiment are carried out and reported publicly by banks, trade groups, and government agencies. The business press is also active in the survey field, and businessmen serve their own interest as well as the public interest when they participate in the surveys conducted by Rome's *Sintesi Economica*, Paris' *Etudes et Conjoncture*, New York's *Fortune*, *Dun's Review*, and the McGraw-Hill publications, to name a few.

The success of Germany's *Konjunkturtest* speaks for itself. The 8,000 participating firms report on market conditions for 362 specific products and commodities in German manufacturing, wholesale and retail trade, and materials supply.

The strongest interest in Ger-

Tea and Profits

How many cups of green tea a businessman in Japan sips each day depends on how many clients and suppliers he sees.

The tea pot at Mitsubishi Shoji is busier than ever. This is because more and more buyers are aware of how profitable it is to trade in Japan. Industry in this country is turning out a growing variety of quality products that find ready markets.

Many of these are products of companies in light and heavy industries that carry the Three Diamonds mark. These are Mitsubishi companies, all represented in foreign trade by their big general-trading partner, Mitsubishi Shoji.

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many has come from manufacturers. About two-thirds of the respondents are in this category, and they report on 205 products. The least enthusiasm has been shown by retailers (reporting on 51 commodities), probably because of their restricted geographical interests. Wholesalers seem well pleased with their cooperative reporting on 101 commodities. The survey of building material markets, begun only four years ago, is winning growing support though it covers only five markets.

Respondents are not selected by sampling techniques. To build a sufficient weight of opinion, the Institut sought out and persuaded businessmen to participate. So long as there is a survey of the industry, all firms are welcome to participate.

• **Predictive Value**—How meaningful is the businessman's judgment? According to an Institut publication, *The Konjunkturtest, A New Method of Economic Research* (in German or English, from Duncker & Humblot, Berlin-Munich, 1960) the best and most useful information comes from judgments of the recent past—these provide reasonably accurate guides to the current situation. The survey results are used for market analysis, and as a source of information on sales trends. And the speed of the "feedback" is of vital importance: During critical stages in the business cycle, even a few days can make a big difference in decision-making.

When it comes to the future, business sentiment is less reliable. In some industries, particularly in engineering fields, there is a close relationship between expectations and events. But in others, such as textiles, there is not; and within the textile industry, for example, expectations of new orders are much less predictive than price plans. But at least, a respondent can tell whether he is more or less optimistic than his colleagues.

The last word comes from the German businessmen. Each in his own way, no doubt, they have learned to use the survey results in their short-term planning. They have discovered one of the most basic of management principles: A few rays of light released by many companies create a beam by which all can see better. ●

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The largest market in the world is the two thousand nine hundred million people who live there. Two thousand nine hundred million potential customers. Some live in lands where radio is magic; some in lands where teleprinters that receive 400 characters a minute are routine. Some are affluent today and thrifty tomorrow; others thrifty today and affluent tomorrow. On the whole - unpredictable. Can one organisation master such varied *locales* and varying fortune? By operating *locally* on a world scale, yes. Philips find geographic versatility in a unique economic structure: a world **federation** of locally-integrated, locally-manned Philips companies, each knowing and tending its own market. Their far-reaching resources and universal service in 58 lands around the world have a common aim: to bring the unbounded resources of electronics to the service of all mankind.

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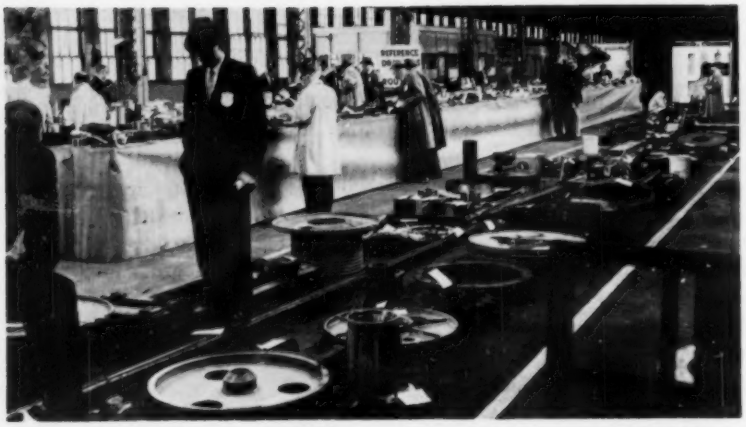
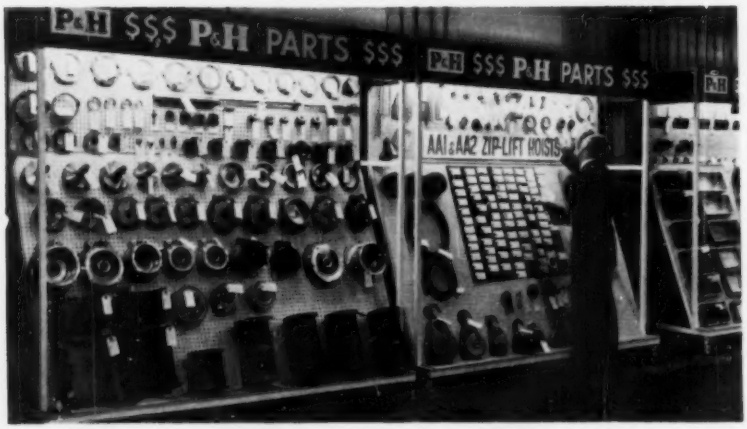


DISPLAY of 3,000 parts, studied by vendors and engineers, saved $8,000 . . .



. . . so Harnischfeger Corp. now mounts monthly displays to solicit . . .

Ideas from Inside and Outside

HARNISCHFEGER CORP., a U. S. producer of heavy engineering equipment, last year set a goal to cut production costs by $150,000 a year by a careful study of the component parts of its products.

Among other things, the company makes excavators (the famous "P & H" line), and excavators have a lot of parts—3,200 in all. Some 60% of these parts were bought outside. It was here that the cost-cutting efforts began.

Harnischfeger set up a three-man task force composed of a design engineer, a production engineer, and a purchasing specialist. In 10 months, this task force has cut costs by $50,000 a year, and its program is just getting into full swing.

The task force is called the "Make or Buy Committee," and it has become involved in everything from design and standardization to process economics and surplus equipment disposal problems.

• **First Projects**—For their first assignment the three men decided to set up a display of every part that went into the company's excavators. It took a month to get all the parts together, with blueprints and production flow charts, and arrange the display in an unused portion of the company's plant in West Allis, Wisconsin.

The three men arranged for the company's entire management force, from shop foremen to top executives, as well as the engineering staff, to study the display and offer suggestions. At the same time, an invitation was sent to 433 suppliers to visit the display and make bids on any of the parts. Representatives from 365 companies attended, and the result was a spurt of new, competitive bids.

The price competition alone resulted in savings of $8,000 a year over previous prices. More important, there was a "snowball effect." Suggestions from plant personnel, and questions from suppliers, directed the committee's attention to new avenues of exploration. "With a project like this, you do not stop with a few items," comments Elmer Brown, the process engineer. "You have to review the whole package."

The display worked so well the task force decided to construct permanent display cases (left) for the purchasing department. Designed with pegboards and brackets, the cases are easily changed once a month. Vendors are invited to inspect each special display of parts, and visiting salesmen always look over the display before talking to a company buyer. The display cases cost $1,500. The first display — hoist components — resulted in a saving of $4,500 a year.

• **Plant Tours**—Another technique used by the task force is a regular monthly tour of the plant. On a recent trip, the men noticed that a heavy, machined piece of chain was used to support a control box on an overhead crane. Looking into the matter, the committee recommended a standard pressed-metal chain that would do the job just as well. Their recommendation was accepted, at an annual saving of $3,000.

As the result of another tour, they investigated copper waste that came from an engine component. It turned out that the company bought partially-machined copper parts, and the final machining ate up 50% of the metal. By letting the vendor do all the machining, reclaiming the scrap, Harnischfeger saves $10,000 a year.

Often it pays to do more buying on the outside. In one case, the task force decided it would be cheaper to sell a die-casting machine, used only 22 weeks a year, and purchase parts from outside.

• **On Assignment**—The committee has enough ideas and problems on hand to keep itself busy for some time. Each man is still on the payroll of his own department, but assigned to the committee. The men share an office.

The purchasing man, Earl Collins, points out what he considers a major factor of success. "We try to stay away from paperwork." (*Purchasing Week, March* 13, *p*28)

If it takes 73⅓ accountants 1423¼ hours to balance 219⅙ ledgers, how many accountants will it take when business increases 168% and how long will it take them?

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Surgery for Sick Companies

For emergency operations, Kenneth Leghorn has mastered some sharp management tools.

AN INVESTMENT BANKER recently said of Kenneth Leghorn: "Photostat Corp. was a real mess when he took over as president. It still has troubles. But he has done a remarkable job of putting the company on its feet."

Prior to last year, Photostat had lost money two years in a row despite rising sales. Then the company was bought for $2-million by Itek Corp., a young, small (actually smaller than Photostat) and expansion-minded electronics company. Under Leghorn, Photostat was making money in six months.

To Wall Streeters, Leghorn's specific management methods are of small concern. It is enough to say that he had put two companies on their feet before—and now he has done it again. To management men, however, the big question is "how:" How does Kenneth Leghorn go about rejuvenating a company?

Kenneth Leghorn

• **Leghorn's Methods** — As with surgery, management emergencies require more drastic measures than are ordinarily prescribed. Yet a knowledge of emergency procedures can lead to a more acute understanding of normal procedures. Leghorn's methods were recently outlined in the U.S.A.'s *Management Methods* magazine (March).

Leghorn is described by *Management Methods* as a "tall, friendly bald man of 40. His easy manner does not reflect the kind of hard, competitive thinking that creates profits where none existed before."

"Kenneth Leghorn has mastered a set of strong management methods," the magazine continues. "He has discovered that these methods produce predictable results."

• **First Step**—At Photostat, Leghorn's first action was to put all authority into the hands of top management — for as long as needed. In particular, spending authority was centralized so that even the slightest change in spending plans required top approval.

Because centralized authority consumes "great gobs of time," Leghorn put management on a "24-hour, get-the-job-done" basis. This "automatically screened out those who did not measure up."

Considering the "mess" that Photostat was in, Leghorn's appraisal of management personnel was understandably harsh. Before the dust settled, he had replaced 17 management people — including

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seven of his eight top men. Centralizing authority gave these new people an opportunity to learn the details of the business; to Leghorn, it is important that key management people are capable of making good decisions at every level of a business.

• **Meetings Galore**—Leghorn believes that good decision-making calls for teamwork: "If a problem comes up that requires a decision, we will call a meeting to get the thinking done and get the decision made. Other work can be postponed, but if you start postponing decision-making, management control begins to slip."

Leghorn also believes that company decisions should have a family resemblance: "We achieved this by making all key decisions in our management committee meetings. Later, as the company began to assume a personality in its decision-making, people at lower levels picked up the pervading tone . . . and learned to fit their decisions into the pattern."

• **State of Flux**—Leghorn's strategy was to dissolve the rigid organization structure that existed, then to keep things in a state of flux for a short while. Meetings were deliberately informal. Ideas on how the organization could be reshaped were discussed at length, and tested if possible.

An organizational structure was installed only after the top management group was reasonably certain it would work. Even then a change in one department would set off a chain reaction in others.

"If you disassociate yourself completely from personality," Leghorn explains, "and structure your organization strictly on the basis of function, you have a gage to use in judging whether a man can handle a given job. This is far different from tailoring jobs to men, and then hoping that the jobs mesh and the organization will stand up."

• **Attack on Weaknesses**—When Leghorn came on the job, Photostat had two separate sales organizations. He quickly discovered they were fighting each other.

Rather than try and resolve the dispute, Leghorn considered either disbanding the sales groups and starting all over, or deciding which was stronger and letting it absorb the other. He preferred a fresh start. But for practical reasons, he decided on the second choice. Meanwhile, he began planning a major reorganization of sales.

A fast attack on weaknesses is one of Leghorn's cardinal rules for making a company "snap out of it."

• **Test by Overloading**—Leghorn believes in overloading management during a shake-down period. Demand the impossible, he says, and sometimes you will get it. At the least, you will find out what the organization can and cannot do.

The temptation to add staff may become almost unbearable. Yet "it is a mistake to increase the size of the staff at this time," Leghorn believes. "People get overworked, certainly. But if you relieve the tension . . . you defeat the value that overloading provides."

When there is more work than management can do on a "24-hour basis," Leghorn calls in outside consultants. He says he never lets them make decisions for him, nor hires them to set up management programs he could not set up himself if he had the time. ●

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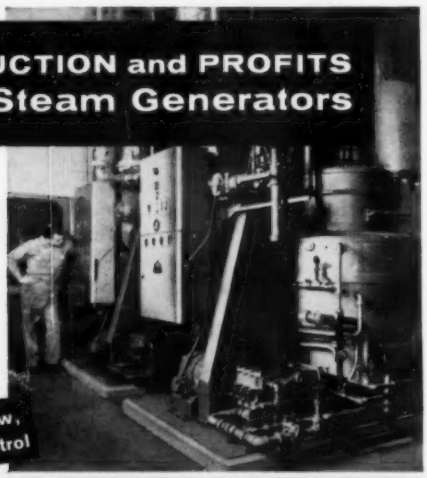

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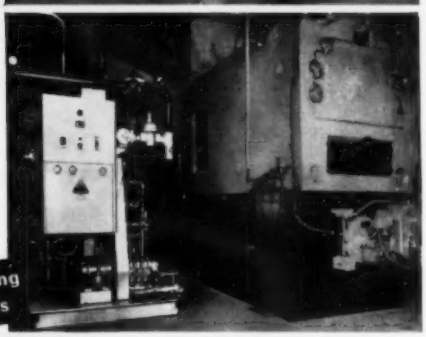

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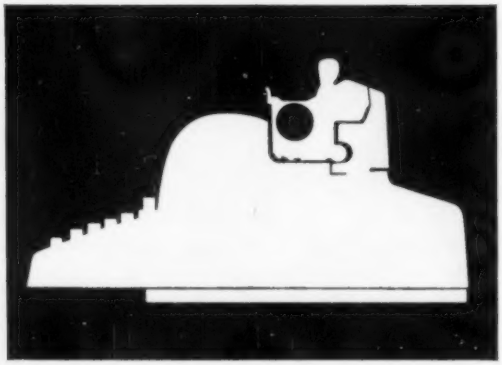

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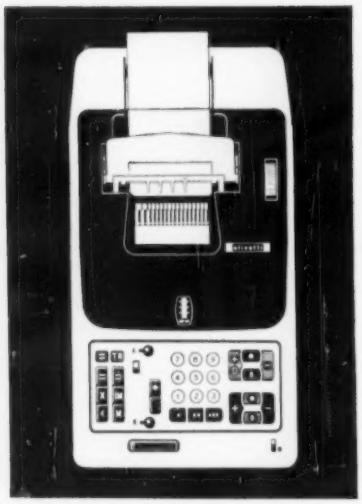

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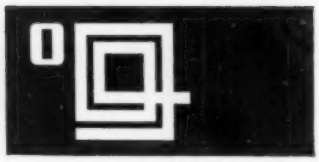

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PRES. BOSCHEN (left) and his key aides: G. W. Bailey, North American general contracting; D. W. Moss, foundations; E. T. Morris, overseas operations.

Global Risks Pay Off

A CONSTRUCTION FIRM consists basically of money, equipment, and men. No company for long can have a big edge in money and equipment. But it can build a team of skilled men—like the quartet of executives above, who have helped change Raymond International Inc. during the years from a modest U.S. foundation-builder to a leader in global construction.

Raymond recently took on the $43-million job of building a harbor, railroad, and other facilities for the Lamco project in Liberia. This is the $200-million mining enterprise, announced a few weeks ago, that will unearth iron from Liberia's rich Nimba Mountains with the aid of Swedish, U.S., and German financing.

To Raymond International, Lamco is just another foreign contract, a part of the $2,000-million of overseas business it has done in 34 countries in the last four decades. Like many American firms, Raymond's foreign operations are increasing steadily. Today, half of its $120-million annual business is generated outside the U.S.—and a growing share of its profits.

• **Challenge & Opportunity**—Overseas construction represents special challenges and opportunities, according to Henry C. Boschen, Raymond's new president. Boschen should know, because until he was elected president last year he headed up Raymond's overseas operations.

"In our years of work abroad we have often seen the dramatic effects of new construction," he said not long ago. "It's exciting to see whole regions literally come alive when a new road is completed and the inhabitants realize they now have a way of getting their goods to a market."

Raymond International has thrived in overseas construction, despite the formidable competition of other U.S. as well as European firms. One reason may be because it gives full attention to these operations; it does not treat them as a sideline. In every sense of the word, the company is "international."

"We buy materials and services where we can get the most for our money," says Boschen. "We have used British naval architects, Dutch dredgers, Singapore shipyards."

E. T. Morris, who succeeded Boschen as overseas head, puts the company's effort this way: "We try to blend American management and specialized equipment with the material and labor resources of overseas areas."

• **Good Foundation** — Another factor is that Raymond has always relied heavily on the work it knows best. Initially, this was foundation construction, a field in which the company got started in 1897.

The original company, known until about three years ago as the Raymond Concrete Pile Co., was founded by Alfred A. Raymond, inventor of the shell-cased cast-in-place pile. For many years the mainstay of the company's business was the Raymond pile: a corrugated metal shell driven into the ground with a core, then filled with concrete when the core was removed.

Raymond piles now support thousands of buildings, bridges, wharves, and other structures in every part of the world. Foundation work still accounts for 37% of Raymond's income, but it is overshadowed today by overseas general construction.

The company currently is working at least 20 countries. Besides the Liberia project, major jobs include tanker-loading facilities in the Persian Gulf, a harbor in Ecuador, an offshore gas conservation plant in Venezuela, a 480-kilometer road through the jungles of Thailand.

• **Specialization** — Raymond has increased its overseas operations—quadrupling them in the past 10 years—by specializing in fields where profit margins are higher and competition less severe than in conventional construction. The company has invested heavily in research to develop the products, equipment, and techniques for maintaining a competitive edge.

The company's experience in building offshore drilling platforms in Venezuela, for example, prepared it for erecting the first offshore radar station in the Atlantic, and more recently, for laying 11 kilometers of concrete sewer outfall on the ocean floor near Los Angeles, California. And this experience, in turn, forms the basis for the current proposal of Raymond and some associates to span the English Channel by laying precast tunnel sections on the channel floor.

• **Political Risks**—There are of course special risks in overseas construction, as well as opportunities. The political risks are real, though

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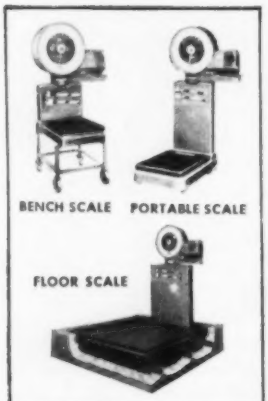
. . . THE ANSWER to prevent "guesswork" and errors in cost control!



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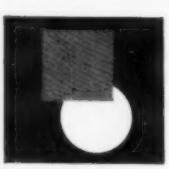
"MISFIT" SCALES MULTIPLY COSTS

Scales can become "misfits" as a result of changes in plant layout, materials handling, inventory controls, value or quantity of materials weighed. If this has happened in your plant, the results can be costly. For example: weighing errors, production bottlenecks, materials handling inefficiencies. Be sure your scales are adequate for the job. Ask your Toledo representative about a scale adequacy check in your plant, or send for the Toledo Weight Fact Kit.



SERVICE

TOLEDO® *Headquarters for Weighing Systems*

Raymond has been relatively lucky in the past.

"We've been through many political disturbances in our 40 years abroad," says Boschen, "and it's doubtful if we ever lost more than a few days during any one of them. Generally, we stay out of the way until they blow over."

Despite this, Boschen feels there is a sound argument for covering part of the political risks with adequate government insurance. The other risks—resulting from strange terrain, climatic conditions, currency, labor supply—usually must be shouldered by the contractor. The contractor's ability to do so, in fact, is a test of his competitive skill and strength.

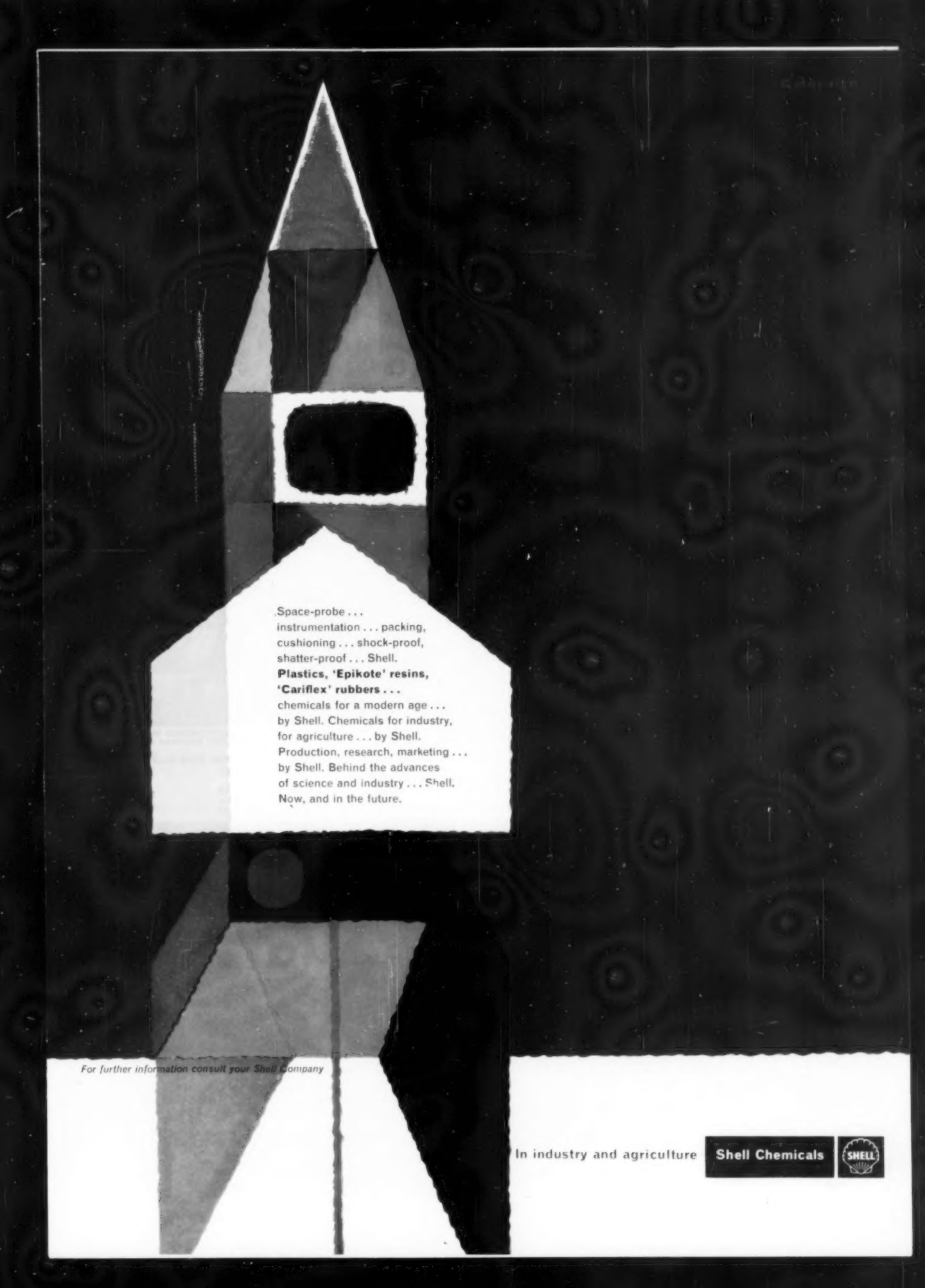
In moving into a new area, Raymond strengthens its position by closely integrating its organization into the customs, language, and economy of the area. It makes every effort to be a good neighbor —or good visitor—and it tries to help the economy by making use of local labor and materials.

Overseas, Raymond often must provide services it doesn't provide at home. It may be called upon to help arrange financing, design housing, train local labor.

• **British Tie-in** — Except for highly-specialized projects, like the proposed tunnel for the English Channel and unusual foundation work, Raymond makes little effort to compete in Europe. It sees its greatest opportunities in underdeveloped areas, and especially in Africa, despite the current unrest there. Its position in this area was strengthened a couple of years ago when it set up a British subsidiary, through which it now participates in many joint ventures.

Boschen believes that his company can effectively compete almost everywhere in the world. But he is alarmed at the recent talk in U.S. government circles of revising methods of taxing firms working abroad (IMD—Mar, p19).

Any increase in tax, he believes, would remove incentives and reduce the ability to compete with foreign contractors. He stresses that European companies already are getting substantial tax allowances from their governments on their overseas profits. ●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cushioning . . . shock-proof,
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NAVITIMER — 17 Jewel, exclusive chronograph, calibrated with logarithmic scales of an aerial navigation computer. Movable bezel; 12 hour recorder; 30 minute register; luminous dial.
8060 Stainless steel.

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7650.

CHRONOMAT — 17 Jewel, Exclusive Slide Rule, Chronograph; solves complicated mathematical and engineering problems: multiplication, division, ratios, interest, percentages, speeds, averages, etc.
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UNITIME — 17 Jewel, automatic self-winding, exclusive wristwatch, featuring the date, and indicating the time at 24 capitals of World's time zones. Indispensable for the international businessman.
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1002 Gold top.

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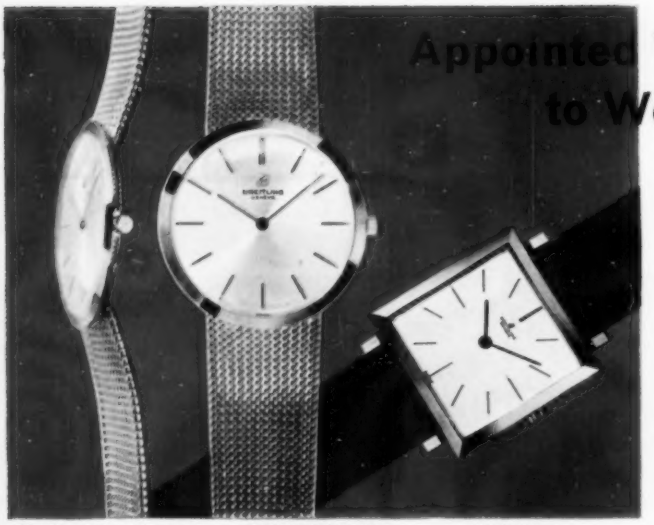
The new SuperOcean 20 atmos. (600 ft.) was specially created for deep sea exploration and to cater for the fast growing popularity of underwater sports.

807 Chronograph with time-out feature, revolving bezel, all stainless steel case, bright luminous dial, 30 minute chronographic recorder ensuring accurate submersion timing. Adjustable steel mesh bracelet.

1004 Automatic watch (fully self-winding). Revolving bezel ensures complete protection of the safety glass crystal and easy underwater manipulation, even with gloved fingers. Adjustable steel mesh bracelet.

Appointed Watchmaker to World Aviation



See how extra thin these watches are!

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904 18 Kt. gold with gold bracelet.

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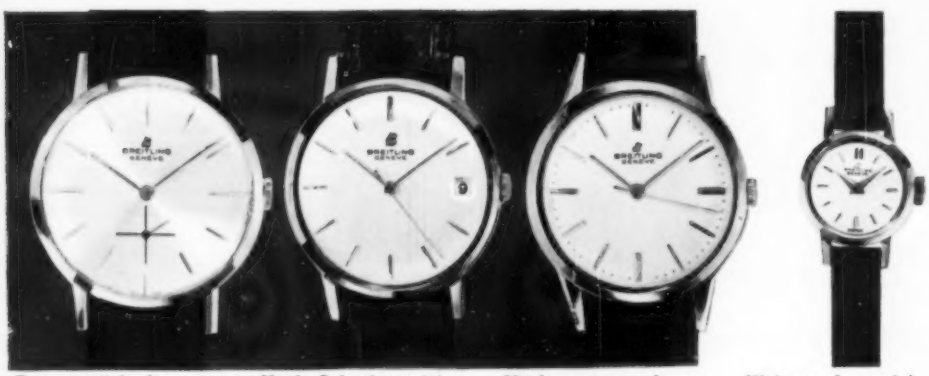

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Shock protected, waterproof, non-automatic.
4005 Steel.

Shock protected, waterproof, automatic.
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EXECUTIVE
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2519 Steel.

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Waterproof model for ladies
6750 Steel.

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These four exclusive "French style" creations are supplied in a de luxe gift box with four instantly interchangeable bracelet attachments, each of a different color! Choose a bracelet in tune with your dress and strike a high fashion note!

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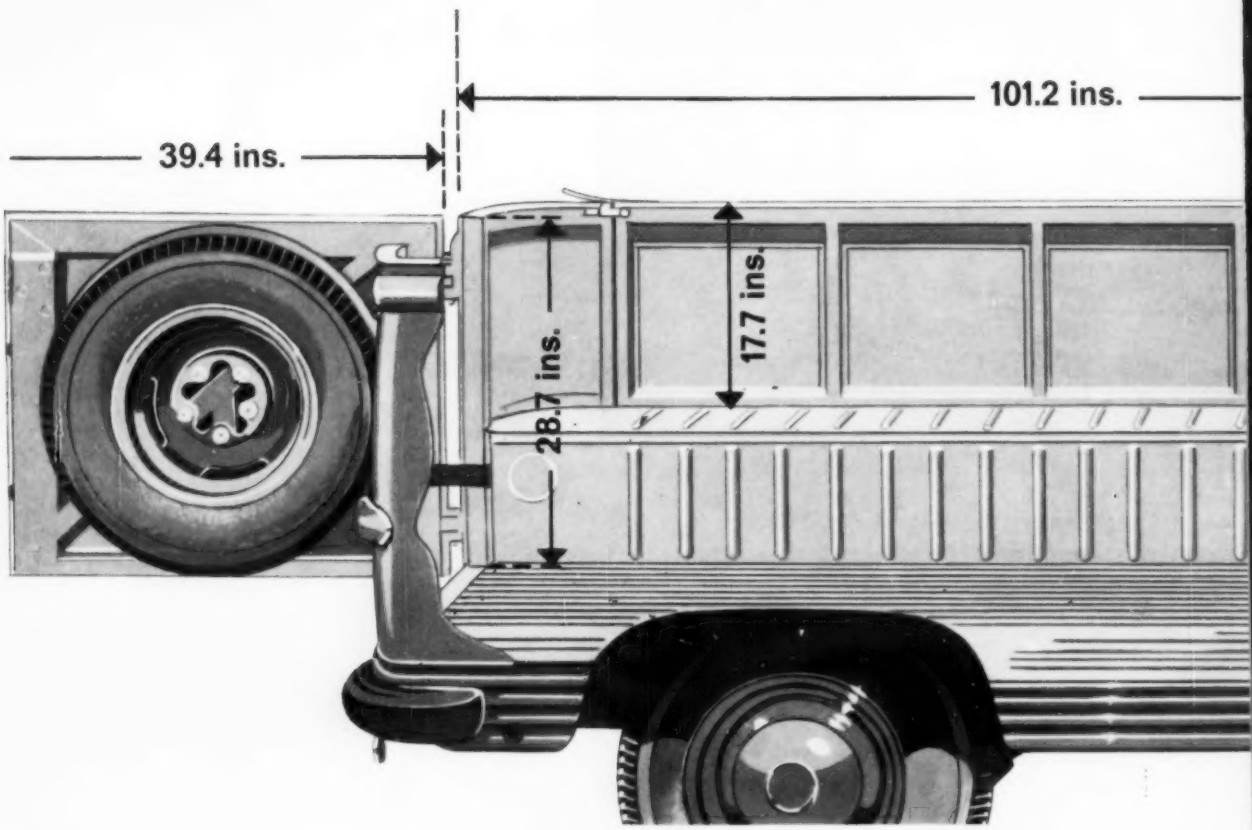

Taunus Transit pick-ups offer

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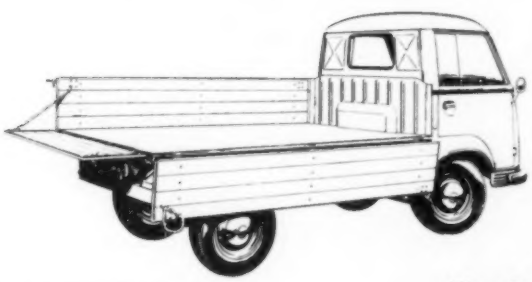
- Great capacity for heavy loads: Payload either 2756 or 2205 lbs.
- Ideal for heavy hauling: Tough all-steel construction; strong truck type suspension.
- Fast and easy loading: Wide rear gate; deep and flat load area.
- Dependable rapid transport: Powerful 60 HP (SAE) Taunus motor; fully synchronized 4-speed gearbox.

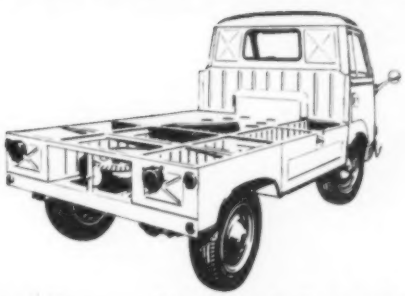
Pick-up	Engine	Gross vehicle weight	Payload	Cruising speed	Fuel consumption
Transit 1000	43 HP (SAE)	4630 lbs.	2205 lbs.	59 mph	32.5 miles/Imp. gal.
Transit 1000	60 HP (SAE)	4740 lbs.	2205 lbs.	62 mph	31.4 miles/Imp. gal.
Transit 1250	60 HP (SAE)	5291 lbs.	2756 lbs.	62 mph	30.7 miles/Imp. gal.

These specifications may vary from country to country

1 X 32

at load area · all steel body





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Paper—for centuries man's best medium for communicating ideas—is moving into greener fields. Today, it packages the products we live with. It helps build the homes we live in. In disposable form, it even provides some of the clothing we wear. New paper-industry chemicals and processes, many of them pioneered by Dow, make it possible for paper to do more jobs for more people better than ever before.

DOW

Small Chemical Firm Competes with Giants

Werner Kreidl

DIM PROSPECTS for an early union of the European Economic Community and the Free Trade Association are causing much concern in European industry—and especially in firms like Austria's small but significant Vereinigte Chemische Fabriken Kreidl, Rutter & Co.

Kreidl, Rutter employs only about 400 people but it ranks as one of Austria's top 20 chemical producers. With annual sales of $5-million, it fills about 80%-90% of the Austrian market for the melamine, urea molding powders, and other chemicals it produces.

• **Exports to Germany**—With the domestic market already highly saturated with its products, Kreidl, Rutter officials know that the company must export in order to grow. The company is worried about the trade split in Europe—because it today exports a large share of its production to Germany.

Common Market countries in recent times have been taking a significant 21.1% of Austria's chemical export. EFTA's importance to Austria also has improved, but EFTA countries still buy only 11.4% of total Austrian exports, and offer less potential for growth.

Kreidl, Rutter is typical of several Austrian chemical firms.

The company was founded fifty years ago on work done by research chemist Ignaz Kreidl in the rare-earths and opacifiers field. In 1939, when Germany marched into Austria the company was handed over to a Nazi general as a political prize. Uninterested in chemistry, he left the organization intact, but a few days before the end of the war U. S. bombs completely destroyed the plant.

• **Rebuilt**—The plant was reconstructed in 1947-48 with Marshall Plan funds, after being restored to the owners. In 1950, production reached 1945 levels. And by 1960, output was increased 650%, largely owing to Austria's resins and plastics boom. Output is expected to double again by 1963.

The company's largest market now is plastics and resins—for use in textiles, paper, furniture, brake linings, adhesives, grinding wheels, foundry molds, etc. Its plants are running at 100% of capacity, and expansions are now under way.

Like most Austrian producers, says Werner Kreidl (picture; he is Ignaz Kreidl's son and one of the firm's two chief partners), the company would welcome an all-European free-trade area. Kreidl feels that the firm can hold its own against the EEC's large producers —so long as they do not have a tariff advantage.

Kreidl, Rutter's confidence is based on its technological achievements. Unlike many Austrian companies, this one uses no foreign technology.

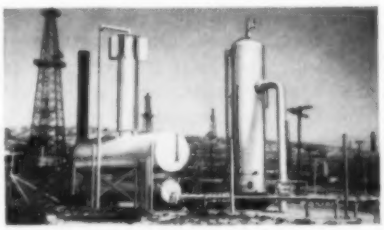
• **Higher Productivity**—Despite its relatively small size, Kreidl claims the company's costs are no higher than those of its big German competitors. It achieved this high productivity by redesigning its equipment for multiple use, thus enabling it to produce its resin line of more than 100 varieties in large batches, with less equipment. Recently the company put into operation a plant for impregnating paper about 2 meters wide with melamine—one of the few machines in the world that can handle such widths.

Kreidl attributes the company's efficiency to its organization. The development people supervise manufacturing, technical service, and sales, thus providing a short line of communication from customer needs to product adaptation. (*Chemical Week, March 25, p128*)

Dow latexes and flocculants upgrade paper for better printability, color reproduction. Products fashioned of Dow plastics are bright with the rainbow hues of the buttons. Foods from the farm, exemplified by wheat stalks, grow more abundantly with the aid of Dow agricultural chemicals.

Carpet manufacturers use Dow latex in carpet backing to increase quality, anchor fibers firmly.

Metal cleaning is safer and easier with Chlorothene*. Dow's cold cleaning solvent which has low toxicity and no measurable fire or flash point.



Gas conditioning. Monoethanolamine is used for scrubbing, diethylene glycol for dehydrating.

For information on any of Dow's products and services, contact your local Dow representative or the Dow branch office nearest you.

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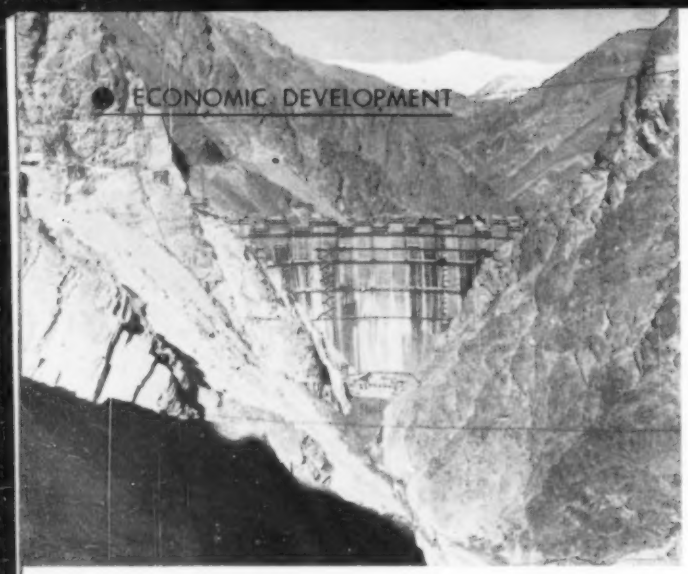


ECONOMIC DEVELOPMENT

For Faster Growth,

The Karadj Dam (left) will soon supply water and power to Teheran and the Persian countryside nearby. It typifies the rush to build dams in Asia, a mighty effort calling for the finance, skills, tools, and materials of all the world. Here a well-known editor* describes a visit to dam projects from Tokyo to Cairo.

THE WAY to develop a country is to build a dam. This may or may not be good economic doctrine, but it is being enthusiastically embraced by most of the underdeveloped countries of the world, plus some that are already considerably advanced along the road.

This obsession with dams is apparent to any traveler who follows the trail from Tokyo to Cairo via Southeast Asia and the Middle East.

Dam-building has top priority in Japan. The biggest construction jobs in Taiwan, South Viet Nam, Thailand, and Iran are dams, and in each case they are absorbing the bulk of the development funds these countries can marshal through borrowing and appeals for aid. India and Pakistan have agreed to transfer water from full rivers to empty ones—and that means building two dams that will rival if not exceed the largest in the world. And in Egypt, of course, the importance of dam building to the national welfare is of almost frightening proportions.

The dams involve countries far beyond the locale of the structures themselves. For their financing and for their design and construction, aid and advice must be sought far and wide. Not too many years ago the United States was the sole source from which these countries could seek help. Today, with Western Europe, Russia, and Japan prosperous and fully recovered from war destruction, and with more developing countries in a mood to pay for their own development projects through borrowing, the opportunity to provide finance, equipment, and advice is wide open.

More and more of these dams are being financed by loans from the World Bank. So engineers, contractors, and manufacturers from any of the World Bank member countries are eligible to compete for the contracts on equal terms. Frequently, too, the World Bank has its own consultants. On a dam in Japan, they will come from Switzerland, Italy, and the U. S., and this same panel may go on to examine a dam in Iran or Mexico.

But financing comes from other sources, too—the U. S. Development Loan Fund, Japanese war reparations, and direct loans from governments or from private institutions. Thus the international pattern broadens. In Taiwan and Thailand, American engineers and contractors are building the dams, while in Lebanon it is the French, in Egypt the Russians, in Iran both the Italians and the Americans. For the great Indus water-transfer scheme, Pakistan has a roster of consultants and approved bidders that reads like a list of the industrialized members of the United Nations. Through war reparations agreements, Japan is financing and building dams in South Viet Nam and the Philippines. And to confer the ultimate of international flavor on dam-building the United Nations itself has taken over investigations for the development of the Mekong River.

Why do so many countries place water storage structures at the top of their shopping list for things that promise progress and a higher standard of living? They could buy a lot of housing and highways for the money they are spending on dams, usually far from civilization. With less political and propaganda appeal than some other facilities, why are dams so popular?

The answer you hear is this:

Housing and highways, except during their construction, do not provide urgently-needed employment. Industry can supply this increased employment, but first electric power is needed. This power may be generated either by steam plants or by hydro stations fed from dams. But a labor force to use the power is also needed, and in many undeveloped countries it cannot be spared from farming; most of the population has to keep busy raising food and fiber just to stay alive. Building steam plants

*Few construction projects in the past three decades have not been visited by Waldo G. Bowman (right). For 21 years Chief Editor of McGraw-Hill's weekly Engineering News-Record, Bowman circles the construction world, logging nearly 50,000 km. yearly, reporting in exquisite detail on dams and highways, bridges and buildings. Just back from another globe-girdling trip, he has cleaned the dust of the Hindu Kush from his typewriter, and written this article for INTERNATIONAL MANAGEMENT.

Nations Place Hopes on Dams

does not improve agriculture. But dams can—providing water for irrigation (plus flood control and drinking) after it has been released through the power turbines. And resulting farm yields may allow people to leave the land.

And so it is that dams—big, costly, often difficult—are being built as the cornerstone of the development effort. Here are some examples:

• **Japan**—Already an industrial nation, Japan continues to build dams to become more industrialized (IM—Feb). Japan brought 91 dams to completion in 1959, and had 99 others under way. Her own engineers and contractors designed and built most of them using Japanese equipment and materials. The most notable dam is Kurobegawa No. 4, a 184-meter concrete arch, ranking among the ten highest in the world. The cavern excavated for the power station and other facilities is nearly a hectare in extent, probably the world's largest. The country's steep, short rivers are ideal for power dams, but development has gone so far that sites are becoming scarce. Already, big steam plants are beginning to be built.

• **Taiwan**—Chiang Kai-shek's Chinese still dream of returning to the mainland, but they are working industriously to make the island self-sufficient. Improvements are sought in both agriculture and power supply, and two new dams are in the works to contribute to these ends. One is of rock-fill type, its impounded waters to be used principally for irrigation. The other, strictly for power, will be a technical marvel—a 234-meter-high concrete arch, with its spillway outlets submerged under 138 meters of water. When they discharge, the jets of water will shoot out for more than 300 meters before they land in the canyon below the dam. And being so intent on more power, Taiwan is also building two large steam plants.

• **South Viet Nam**—Having depended so heavily on U.S. aid money to keep afloat, the country is now turning to Japanese war reparation payments to finance a $50-million dam and hydro plant, the Da Nhim project, to be Japanese-built. In the meantime there is $25-million from the Development Loan Fund for a new water supply for Saigon.

• **Thailand**—While waiting for the World Bank-financed Yanhee Dam and its 560,000-kw power plant to be completed 400 km north of Bangkok, Thailand is using other World Bank funds to build a 75,000-kw steam plant in its power-short capital city. The dam and some of the roads are located in mountainous jungle, with attendant difficulties for the engineers and contractors.

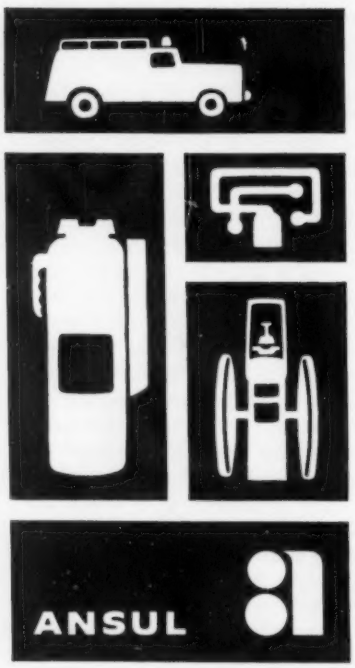
• **Pakistan**—With water in some of the wrong places and with vast areas of worn-out land, Pakistan is embarked on a land-renovation and dam-building program that will cost upwards of $2.000-million in the next ten years. More than half this amount must go into facilities to replace water awarded to India by the Indus Basin Water Treaty. The financing is provided by grants and loans from the U.S., West Germany, and four Commonwealth countries. The facilities include two huge dams to store water on the Indus and Jhelum rivers, and a series of river-size canals to move the stored water across the country to the river valleys that would otherwise be dry when India appropriates water in accordance with the Treaty. In addition to this water transfer scheme, Pakistan is busy with a program for drilling thousands of deep tubewells to renovate waterlogged and salt-encrusted land; with the construction of steam power plants to use its natural gas; with plans to build other dams in the foothills of the Himalayas. (Here, developers must cope with tribes who are not friendly toward surveyors. Guards must be provided—and the rule is 15 guards for each surveyor. By coincidence the guards always seem to be members of the unfriendly tribes.)

• **Iran**—After several false starts on extensive development plans, Iran is finally showing some progress. A 177-meter-high concrete arch dam to impound a water supply for Teheran is practically completed (picture, opposite page). And in the southwest, the whole province of Khuzestan is the object of an agricultural and industrial development of tremendous scope (IM—April, p16). Involved are the Persian Gulf ports of Abadan and Khorramshahr, the inland city of Ahwaz and 120,000 hectares of desert farmland. Key to the program is a 189-meter concrete arch dam in a deep mountain canyon of the Dez River, a tributary of the country's principal stream, the Karoun. It will impound the water for bringing back to the area its ancient crops of sugar cane, cotton, and rice, and it will serve a 520,000-kw power plant.

• **Lebanon**—Lebanon is pinning its hopes for some industrial power and more irrigated land on a single dam, on its one developable river. Under construction in the inland valley on the Litani River is a multiple arch dam to impound the necessary water. A tunnel will carry the water to power plants, and eventually disgorge it on the dry farm land across the mountains. Heartbreaking delays to the tunnel, which ran into quicksand, have occurred. But when the quicksand is conquered—and it will be—the job will add a notable chapter to tunnel-driving history.

• **Egypt**—There can be no doubt as to Egypt's belief in the dam-building-for-growth doctrine. The High Dam at Aswan is regarded as the nation's present hope and future glory. *Sine qua non.* The Nile is Egypt's only river, and the only site on it for a storage dam big enough to hold water over from one year to the next is at Aswan. Dividends from the dam include constant instead of only seasonal irrigation as at present, the addition of 600,000 hectares of new farm land, and a firm power supply from a 350,000-kw plant already completed at the old Aswan Dam downstream and from a 2.1-million kw plant to be built as a part of the High Dam. For financing, design, and construction supervision of the High Dam, Egypt turned to Russia. It adds up to a huge mortgage, but Egypt is convinced that the growth possibilities are worth the gamble.●

■ **Throughout the world those industries with the most dangerous fire hazards... those men who know fire protection best, rely on ANSUL for basic protection.**



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● MARKETING

Disrupting a Settled

When you test a product in a competitive market, how do you collect and interpret facts?

ELECTRA, a brand of margarine, is a fictitious product. But its test market history, outlined in graph form below, is based on a real case involving the introduction of a similar food product into a highly competitive market. There were several well-established brands already in this market.

In a market test of this kind, what specific market facts do you need? How do you evaluate the facts?

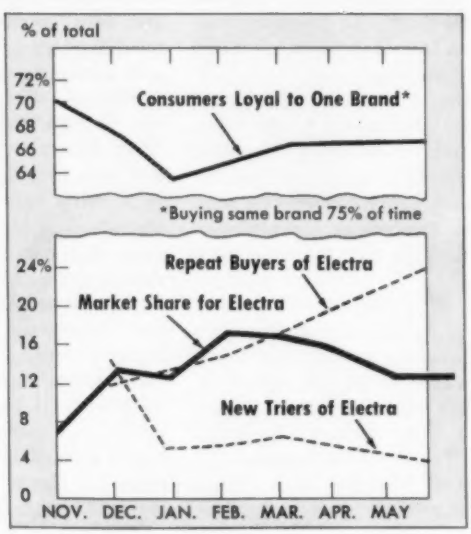
According to Benjamin Lipstein, vice president and associate research director of Benton & Bowles, a New York advertising agency, four basic sets of data are needed—information on market shares, new triers of the product, repeat buyers, and "hard-core" buyers who are loyal to brand names. This information can be obtained from store audits and consumer studies. Lipstein expounds his views on market testing in *The Harvard Business Review* (March-April, p74).

• **Disrupted Patterns**—"Perhaps the most essential point this type of analysis reveals," Lipstein writes, "is the way that the introduction of a new product disrupts the usual patterns of hard-core buyers. When the heavy introductory campaign is reduced, the market . . . will tend to return to equilibrium. However, now your product (if successful) has become part of this market and has its own loyal consumers."

How do you define a loyal consumer? For the margarine market, it is a consumer who bought one brand three fourths of the time during the period asked about. For buyers of breakfast cereals, "loyalty" might mean even less consistent buying because U. S. consumers typically use several brands over a period of time.

What period of time should you ask consumers about? It depends on the product's "repurchase cycle." This might be six months for a package of pads used to clean pots. For margarine, a six-week cycle was chosen: About half of the consumers questioned purchased margarine within this period of time. A knowledge of repurchase cycles is a great help in estimating how

New brand of margarine, Electra, invades market in November. See what happens:



"Loyalty" curve dips as consumers try new brand, creating turmoil in market...

...and share of market for Electra rises fast, then drops and finally levels off as "repeat buyers" offset decrease in "new triers."

Market

long market tests should be.

• **Ups and Downs**—At what point could you be reasonably certain that you had given the product a fair market test?

The Electra brand was introduced with a six-week campaign using advertising, coupons, free product samples, store promotions. During the first few weeks, new triers actually included 15% of all consumers in the market. But the repeat buying rate showed that very few of the new triers bought the product a second time. The rising market share for Electra, Lipstein observes, "was built on sand, and future events justified being cautious."

In following months, as the rate of new triers tapered off, Electra's market share turned down. At the same time, Lipstein notes that "a definite growth in repeat buyers assured us that the bottom had not really fallen out."

• **Equilibrium?**—By spring, the repeat rate for Electra reached 19%, compared to an average of 17% (not shown on chart) for all brands. Did this mean that Electra was passing its competition? "Not exactly," Lipstein says. As measured by the loyalty index, the total market was still in a state of turmoil—the partial recovery of the curve can be attributed to repeat buying of Electra. Before drawing conclusions, Lipstein advises waiting until the market has settled into a new equilibrium.

Electra's share of the market continued to slide—but at a diminished rate. Finally, at the end of May, Lipstein concluded that Electra's market share would hold.

• **Source of Business** — Lipstein also got valuable data from a table that identified the source of Electra's business—which brands lost buyers when consumers switched to Electra. Lipstein discovered that buyers of a supermarket's private, less expensive brand can be attracted by promotional effort—as during the introductory period—but they should not be counted on to become loyal customers. ●

WORLD YALE & TOWNE REPORT

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TURIN, Italy – High stacking in extremely narrow aisles by Yale Warehousers increases storage capacity in this plastics factory which supplies components for Fiat and Lancia automobiles. Not only do these compact, maneuverable Yale Warehousers save warehouse space but time and money too. They assure you of fast, efficient, dependable movement of goods. Ask your nearest Yale sales and service representative how Yale trucks can reduce your handling costs.

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The Consumer "Votes"

Mechanized tests of consumer opinion are a promising approach to market research.

THE SUPERMARKET SHOPPER at right was attracted by the sign, "Please Vote Here," and presumably he was flattered by the statement, "Your Opinion is Valuable—Your Choice May Decide a Future Product."

From 10 of these mechanical "voting" machines placed in supermarkets, it took three days to collect 3,000 answers to three important questions:

"Which Lucky Tiger Hair Trainer label do you prefer?" "Which label do you feel is most modern?" "Have you ever used Lucky Tiger Hair Trainer?"

• **Testing the Tester**—To date, only about half a dozen market studies have been made with this new consumer survey system, an invention—U. S. patent pending—of the Automated Preference Testing Corp. (APT) of New York City. But the "pushbutton poll taker" recently passed a crucial examination by Vick Chemical division of Richardson Merrell, Inc.

The Vick company recently made parallel tests of a proposed package design for its cold remedy—3,000 personal interviews matched against 3,000 machine votes. And the results coincided almost identically, a Vicks market researcher reported in *Modern Packaging* magazine. The machine survey was completed in three days; the personal interviewing required 30 days, and cost four times as much.

Companies like Vicks (which sells over 200-million packages a year) do not dare change their package design without careful study. The reason why companies big and small are going in for more market research and market testing has been well put by Professor James E. Engel of Michigan University: "It is difficult, if not impossible, for the typical executive to place himself in the shoes of the consumer. He is too close to his product or service to assume this perspective without his judgment being severely biased."

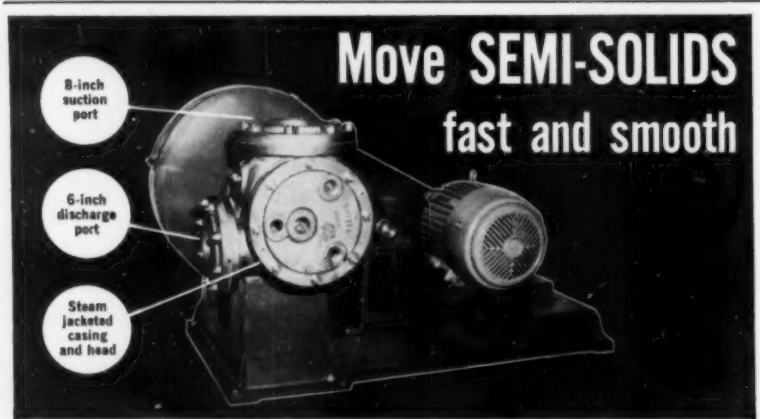
• **Consumer's Shoes**—The APT company adds a promising new approach to the many mechanisms and methods for "filling the consumer's shoes." Through agreements with supermarket chains, APT has set up a national "consumer panel" with 160 machine-voting outlets in various kinds of neighborhoods. Clients can choose the pattern and number of outlets, in eight marketing areas, that best serve their needs. By using the full "panel," a national sample of 48,000 can be reached in three days.

With the six-button machine, a researcher can ask questions in a variety of combinations to test packaging design, product preferences, price, advertising copy, etc.

Machine testing gives no "reasons why" for the opinions, of course, and this information would require some personal interviewing. The absence of an interviewer at the machine, however, has an advantage: There is no danger the person will react to the interviewer rather than to the question.

The units are attached to a supermarket shelf in the sales area where the product being tested would normally appear. APT's own agents service the machines and send the results to New York for processing.

• **Interest Abroad**—APT Vice President T. M. Lakos told IM that his company has had enquiries concerning the machine and service from engineering and market-consulting firms in Britain, West Germany, Norway, Sweden, and Italy. But APT is holding back on expanding abroad until it has more experience in the U. S. market. ●



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This Office Handles $1-million Business

WITH the small, efficient office above, Smith-Wolff Import Corp., New York, keeps its overhead costs to 5% of gross sales. This figure includes warehousing, which is handled under an outside contract.

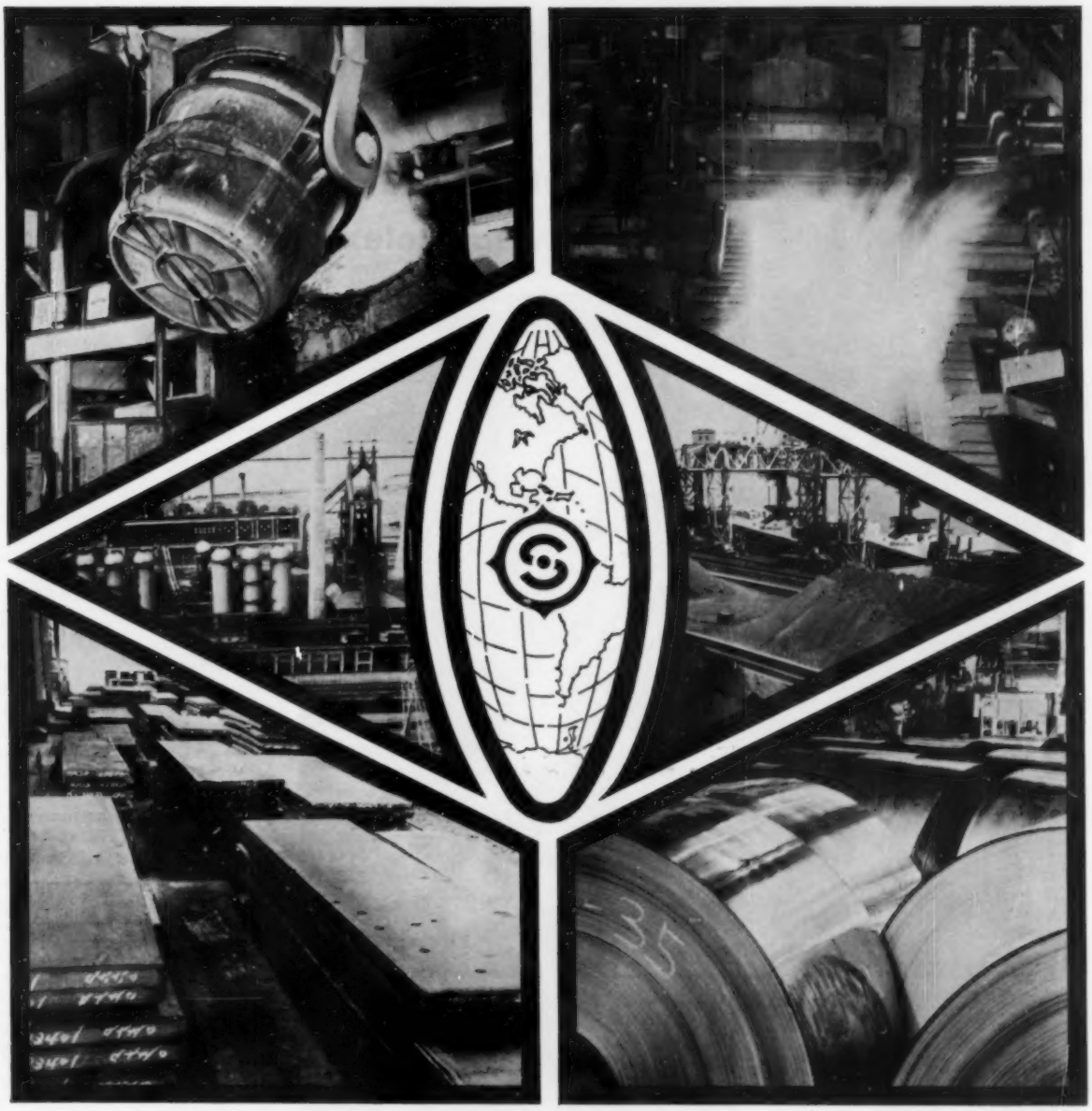
Smith-Wolff is a good example of how small marketing firms are trying to streamline operations through efficient office procedures. The company's office is described in *Office Management* magazine (April, p38).

Sales to 400 wholesaler customers are made by mail or telephone. The company employs no salesmen. Smith-Wolff handles about 300 hardware items, mostly hand tools, from Europe and Japan. About 25 orders a day are processed; volume is slightly over $1-million a year.

• **Office Force** — Besides owner-president Gordon Wolff (in back office) the company has three full-time employees and one two-day-a-week office worker.

Wolff has invested $25,000 in office machinery; almost half went for a machine called a Computyper, which creates a 10-part form for invoicing and internal records. One byproduct is a monthly sales analysis of 20 product categories, and inventory turnover has been increased to eight times a year. Also from the records, an outside accountant makes up monthly balance sheet and profit and loss statements.

Smith-Wolf also uses electric typewriters, a photocopying machine, an electric letter opener and postage meter, and electric bookkeeping machines. Wolff uses a dictating machine for his correspondence, and for all, there is an electric coffee maker. ●



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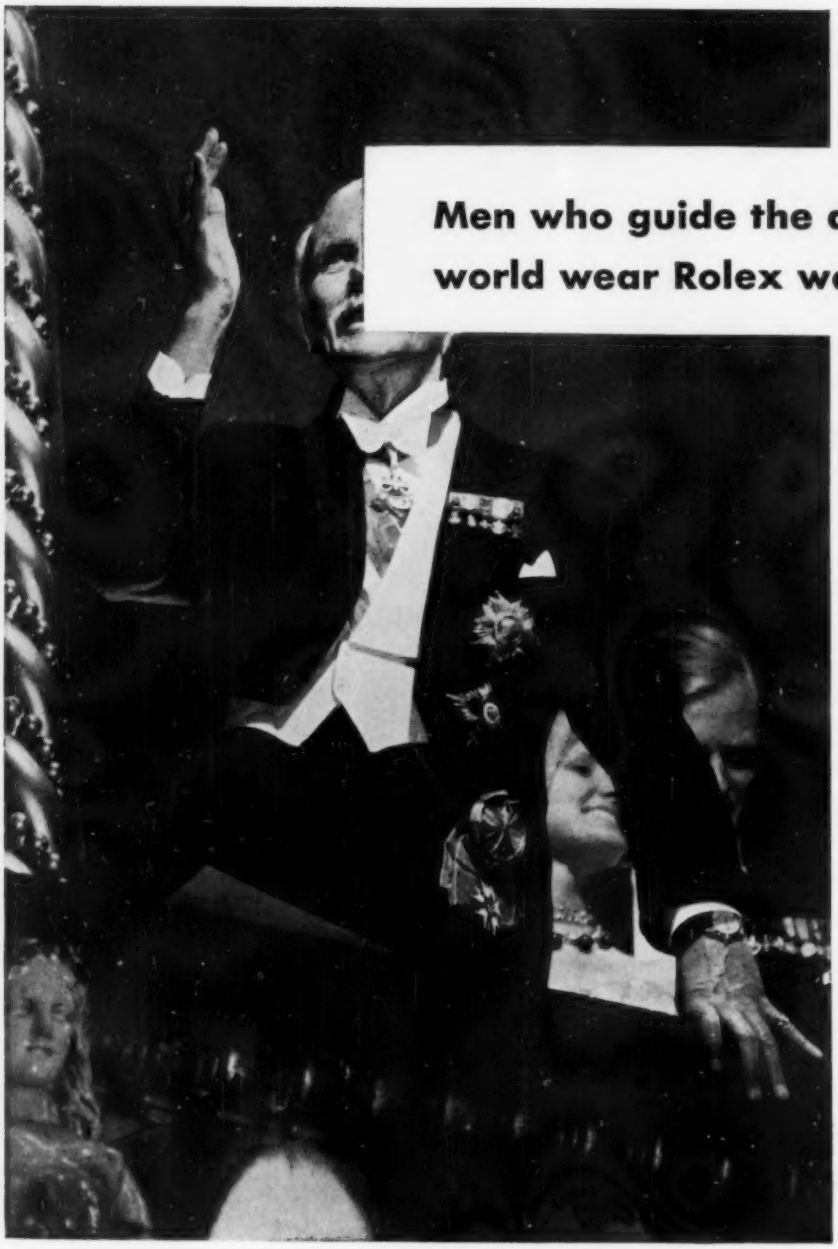

Men who guide the destinies of the world wear Rolex watches

YOU KNOW their names as you know your own. You know their faces from a thousand newspaper photographs, their life stories from a hundred magazine articles. You have seen them and heard their voices on newsreels and on your television screen. Their actions and decisions influence the pattern of our lives.

We cannot mention their names, or show pictures of them. It would not be fitting to do so, for they include royalty, the heads of states, great service commanders. But we invite you to look carefully at the next pictures that you see of them, at their wrists as well as their faces and clothes. You will notice that in almost every case they wear a wristwatch. That watch will most likely have been made by Rolex of Geneva.

We are proud of the service given by Rolex watches to so many eminent men. It is scarcely necessary to point out that the performance of these watches is, in the highest degree, accurate and dependable.

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Is your competition using Clipper Cargo to outsell you in your overseas markets?

During the last six months, Pan Am's Clipper Cargo business increased 50%. Perhaps part of this new business was your competition getting to a foreign market ahead of you.

Today, more and more businessmen are discovering that their products can be carried more profitably by air. For example, this year saw a gigantic increase in air cargo shipment of clothing and textiles, cameras and optical goods, auto parts, machinery and electrical machines and chemicals.

The advantages of Pan Am Clipper Cargo are many—whether your shipment travels in a Pan Am Jet, or is bulky and ships by giant DC-7F all-cargo Clipper. There are savings for you in man-hours, charges, and expenses all along the line—plus the obvious advantage of having your goods there *before* your competition.

Have you been keeping up with the latest news in air cargo? Do you know, for instance, that Clipper Cargo rates are as much as 38% lower than a year ago? And new U. S. and European cities now are served by Pan Am's all-cargo DC-7F's—Detroit and Chicago in the U.S.A.; Ankara, Vienna, Brussels, Paris and Rome in Europe! It will pay you to find out more from Pan Am cargo specialists. In many cases, they have even found new buyers for products never sent overseas before.

Call your Cargo Agent or your nearest Pan American Clipper Cargo office for a free-of-charge analysis of *your* marketing and distribution problems.

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VALVES, DRIERS, STRAINERS, AND ACCESSORIES FOR REFRIGERATION, AIR-CONDITIONING, AND INDUSTRIAL APPLICATIONS

Dreamers go to the market

Economist Dexter M. Keezer not long ago informally polled his colleagues at McGraw-Hill Publishing Co. with this teasing question: "As a consumer, what products would you like to see invented?"

McGraw-Hill's editors and writers came back with some plain and fancy dreaming, hundreds of suggestions, gadgets, practical and impractical ways of making life better, faster, cleaner, more alluring.

Many of the 250 ideas sent to Dr. Keezer were food for thought, but some might prove hard to digest—reflecting the apparently unlimited faith that some people have in the research laboratory. Besides automatic cars and automatic bedmakers, these people one day expect to have "sleeping pills that produce pleasant dreams," a machine that remembers birthdays, an electronic eye for spotting mathematical mistakes in checkbooks, a "dishwasher without water—dishes go in the cupboard dirty, come out clean."

Dr. Keezer's survey produced an interesting sidelight: While 80% of the responses came from men, most of the proposed products were designed primarily for the comfort and convenience of women. Non-wrinkle fabrics, self-cleaning sheets, home dry-cleaning machines, bottled baby formulas are some good examples. Are we gallant, Dr. Keezer was inclined to ask, or merely dominated by our womenfolk and their desires?

A number of replies indirectly pointed up the existence of a communications problem—even among business and technical editors, who are assumed to be better informed than the average man. Several people suggested the invention of products that are now available, though not widely marketed.

It was clear from Dr. Keezer's informal poll that developing a new product is as much a matter of economics and marketing as of technical research. Suggestion after suggestion was for products that would require no inventing—except that required to whittle down the price. Examples: auxiliary wheels to roll a car sideways into a parking place, a mechanical addressing system for personal Christmas cards, throw-away men's shirts, a device for pre-heating an auto's steering wheel in winter.

Any one of these products may be feasible, practical, even a money-maker. But they have to be proven—with a sizable investment—in the unpredictable marketplace for new products.

New nylon process: Toyo Rayon in Japan is starting production of nylon, using a patented nitrosyl chloride process. Toyo says that production costs will be less than those of the process developed by Italy's Snia Viscosa. (*Chemical Week*)

Fuel oil news: First large-scale use of fuel oil in a blast furnace in North America took place this spring, when a Canadian company, Dominion Foundries & Steel, Ltd., changed one of its blast furnaces at Hamilton to full-scale use of oil in the air blast. Widely adopted in Western Europe, the technique uses either fuel oil or gas to raise the maximum temperature at which the air blast can be shot into the furnace, thereby saving on coke consumption through heat economy. (*Chemical Week*)

Two new films: Announcements of new films come from two U. S. companies, Polaroid Corp. and Eastman Kodak. Polaroid has a film "packet" for standard "4x5" cameras that produces a black and white print and negative in 15 seconds, developing them inside the camera. The quality is said to be

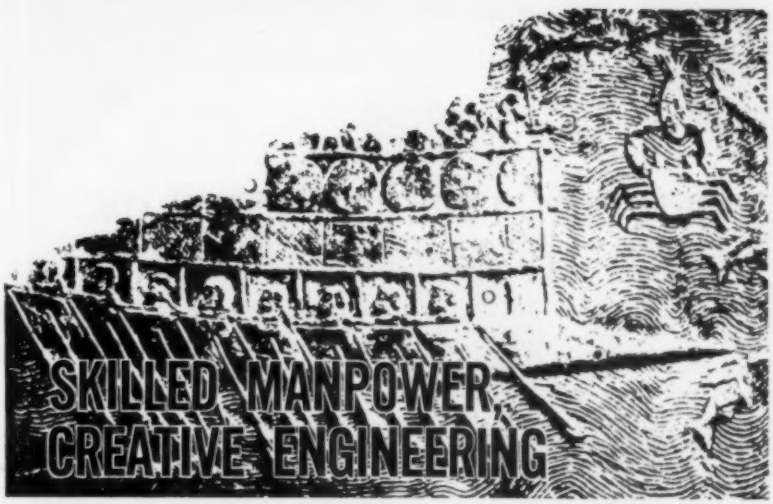
unusually fine. Kodak has improved its Kodachrome color film for 35 mm and 828-size still cameras, and 8 mm and 16 mm movie cameras. The new film is two and a half times faster than its predecessor and is made with thinner emulsion.

Business plane: Cessna Aircraft Co.'s four-place Skymaster, just launched in Kansas, is designed for the modern businessman to fly himself. To safeguard against power plant failure, the twin engines are placed fore and aft, one exerting a pulling and the other a pushing force on the aircraft. Swept tail surfaces are set on tapering twin booms extending from the wings.

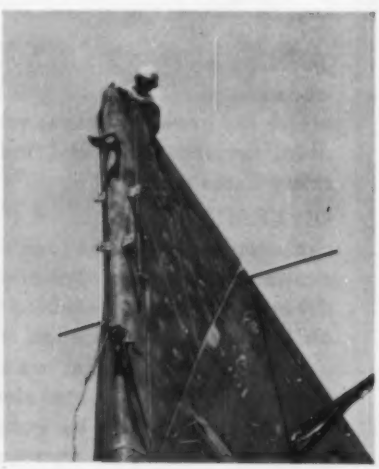
New jobs for rubber: The extreme versatility of improved rubber is earning it new jobs in a wide variety of fields. Latest developments: V-belts of increased power; woven carcass conveyor belting, in which the belting is covered with synthetics and rubber; huge rubber bands for packing cartons; rubber railroad crossing pads to replace wooden or asphalt ones.

Wool that "gives": A treatment has been developed for wool that produces a fabric combining many of the best qualities of wool and synthetics, according to its inventor, L. A. Runton, president of Timely Clothes, Inc. of Rochester, U.S.A. The process alters the molecular structure of wool so that the fabric "gives" or stretches. Up to now, woven stretch fabrics, coming from Europe, have been of man-made fibers.

Desalting unit: From General Electric Co., Schenectady, U.S.A., comes another process for extracting fresh water from brine or sea water. The process depends on a unique distillation unit with unusual design features—among them an assembly of revolving



Skilled manpower and creative engineering is the essence of progress which today rules the Seven Seas. This progress is constantly evident in the new luxury passenger ships, the rapid passenger-cargo ships, the sleek tankers, ore and bulk carriers dotting the globe. The Mitsui ships stand out anywhere — everywhere, in fact, where there's water. And each ship is the symbol of Mitsui manpower and engineering, skill and creativity without peer today and unchallenged tomorrow.



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The result of a joint venture between Mitsui and local industry, this Singapore cement storage and packaging plant last year delivered nearly 2 million bags of cement to buyers in Southeast Asia.

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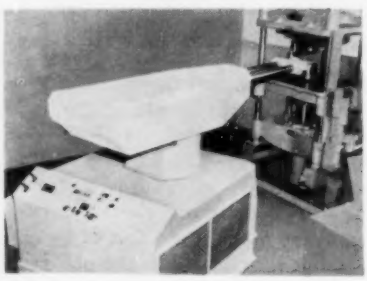
blades that works like a windshield wiper. First tryout will be as a fresh-water generator for ships. (*Chemical Engineering*)

New textile material: A Finnish company, Oy Hemming, claims to have invented a new textile raw material that combines the useful qualities of cloth and leather. The product, called Airon, is said to be suitable for making clothes and upholstery, and to be unaffected by extremes of climate.



Metalworking robot: A fast-learning, fast-working robot called Unimate is in pilot plant production at Consolidated Controls Corp., U.S.A. Designed to perform repetitive factory jobs, the Unimate looks somewhat like a gun turret. The base contains control and operating mechanisms, including a magnetic memory, while mounted on the base is a central column from which extends the robot's arm. At the end of the arm is a "wrist" and a claw-like "hand." The robot needs only to be guided through the steps of an operation by hand to repeat the recorded pattern indefinitely and unattended. (*American Machinist/ Metalworking Production*)

Anti-blowout tire: The U.S.A.'s B. F. Goodrich Tire Company has designed a tire that prevents "shock waves" from developing to the point where they rip tires or cause blowouts. The 4-ply nylon tubeless tire has a scientifically determined cord angle which eliminates shock waves.

New nickel steel: An 18% nickel alloy steel of extreme toughness has been developed in the U. S. by scientists of International Nickel Co. The company foresees a "whole family" of high-strength "Maraged" steels for applications re-

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A completely new ALPA model: the **6c**

Not even ALPA can alter the habit of half a century !

by Georges Caspari

Yes, that is what it amounts to! The ALPA has always been known for its characteristic system of reflex viewing at 45° (the natural angle for reading)—undoubtedly the most convenient viewing angle for horizontal shots! For many enthusiasts, 45° viewing will always remain one of the chief reasons for choosing an ALPA 6b.

But this 45° viewing angle upsets the habit of half a century and there is still a persistent demand for traditional viewing, i.e. level viewing at 0°.

The new level viewing featured by the ALPA c has another advantage: it suppresses the ALPA viewfinder in favor of a built-in exposure meter, indispensable for successful color photography. The ALPA exposure meter functions in complete independence of the camera (unlike automatically coupled exposure meters which may appeal to the amateur but are less useful to the connoisseur who prefers a free hand in adjusting exposure time—depth of field—stop ratios to achieve his artistic effects).

In other words, ALPA, faced with two contradictory demands: reflex viewing at 0° *and* oblique viewing at 45°, now offers both and leaves it to you to choose between the exclusive ALPA *b* and the classic ALPA *c*. Both cameras are equipped with the Kern Switar or Macro-Switar 50 mm f/1.8 lens with fully automatic preselective diaphragm. And both can be seen now at your local photographic dealer's!

The ALPA c has a new streamlined look. It is supplied in a modern style carrying case which holds the camera plus lens shade (reversed). The ALPA, « the Swiss watchmakers' camera », is manufactured by Pignons S. A. at Ballaigues (Vaud). Ask for the new ALPA c prospectus (ref. M 61) just published!

quiring resistance to extreme pressure and stress. ("Mar-aging" is the name given to a heat treatment involving age-hardening of martensite.)

Adhesive tester: Fokker Aircraft of Amsterdam has developed an apparatus for rapid, non-destructive testing of adhesive bonds. It is aimed chiefly at the aircraft and missile industries.

Microfilm copying process: A new photographic process for microfilm copying is challenging traditional picture-processing methods. Using heat instead of liquid chemicals to develop the latent method, it will be moved into cinema, television, and still-picture applications. The Kalvar process, as it is called, is the invention of a new and still nameless company formed in the U.S. by Kalvar Corp. (New Orleans) and Metro-Goldwyn-Mayer (New York). (*Chemical Week*)

Brighter sodium lamp: Philips Lamp of the Netherlands has developed and brought on the market a new kind of sodium lamp that gives 25% more light than the conventional type—the first fundamental change in sodium lamps since the 1930s. The lamp is about 80 cm long, has a capacity of 200 watts, and gives an exceptionally bright light of over 100 lumens per watt. It is aimed at the illumination of highways with dense traffic.

Ultrasonic cutting machine: Latest news from Japan's fast-moving machine tool industry is an ultrasonic vibration cutting machine designed by Prof. Junichiro Kumabe in cooperation with Iwasaki Communication Apparatus Mfg. Co. It is said to obtain particularly good results with materials like permalloy and soft magnetic steel.

Textile industry news: From Hungary comes the announcement of an automatic price printer for yard goods, that indelibly prints price or code-signs on cloth after it has been graded, and a high-speed doubling winder that performs twofold-fourfold winding of cotton, woolen, or rayon threads.

1,100 MILES OF TRENCHING — WITHOUT OVERHAUL

Four Cleveland 320's cut 1,100 miles of pipeline trench without overhaul for a 22"-24" gas line to Buenos Aires on Argentina's Campo Duran Project. The Clevelands dug their way through widely varying terrain, semi-tropical hills, heavy timber thickets, rocky foothills, great salt flats, wet and swampy sugar cane country, wheat and other grain areas, miles of Argentina's famous grass lands.

Complete isolation of the right-of-way created tremendous construction problems. Entire mobile cities for the project's 2,850-man crew had to be created, fabrication shops had to be strategically located along the route, portable repair shops provided, air strips bulldozed out of the rough terrain for transportation of personnel, equipment and food.

Conditions like these vividly demonstrate the real value of quality construction in a trenching machine. These Clevelands proved their dependability, their rugged ability to conquer the toughest kind of digging, staying on the job hour after hour, day after day, through to the completion of the job without let-up, except for normal field replacement of worn parts.

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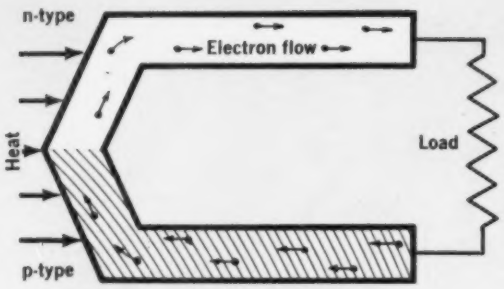
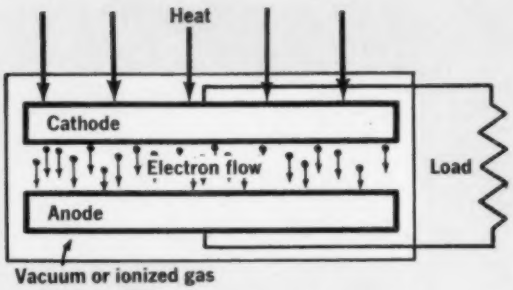


THERMOELECTRIC CONVERTER Heat applied to the junction of two dissimilar metals causes electrons to flow faster in one, thus producing a direct current at the cold end.



THERMIONIC GENERATOR: Intense heat—in the range of that attained in an atomic reactor—causes electrons of a cathode to jump to an anode through a vacuum or gas

Novel Power Systems Move

Fuel cells and thermoelectric units are on the march, and behind them, devices based on thermionics and MHD.

THE FOUR POWER SYSTEMS shown above—thermoelectric, thermionic, magnetohydrodynamic (MHD), fuel-cell—all are making heartening progress in the laboratory.

Two of them—fuel cells and thermoelectric devices—are almost ready to step out of the laboratory into industrial and consumer applications. A wide range of fuel-cell prototypes is being tested in the U. S. and Europe. And thermoelectric converters are moving even faster. Note these recent developments in the U.S.A.:

—Minnesota Mining & Manufacturing Co. says it soon will supply a large group of gas companies with prototype furnaces using thermoelectric converters for air circulation.

—Westinghouse Electric Co. plans to begin production of heat-to-electricity water coolers selling for about $100.

—Borg-Warner Corp. (IM—Apr, p60) will deliver 500 small thermoelectric refrigerators to a large U. S. hotel chain.

• **Direct Route** — All four of these unconventional systems have one thing in common: They directly convert heat or chemical energy into electricity. They can do it without moving parts and noise, and they will be cutting down the investment in machinery.

The three heat-powered systems —thermoelectric, thermionic, MHD —operate at temperatures far above those used in conventional steam-turbine generators. High heat creates problems in materials, but it also allows use of the thermal power generated in atomic reactors and jet engines.

For example, a plan now under consideration would combine three systems—two new, one old—to exploit the heat from an atomic reactor. A thermionic device would use the highest temperatures. A thermoelectric converter would consume middle-range heat. And a conventional turbo-generator would operate on waste heat from the other two.

The four new systems are to some extent competitive with each other, but they have somewhat different application aims. For this reason it is not surprising that the two biggest U. S. electrical companies — Westinghouse and General Electric—are carrying on research in all four systems.

I. Thermoelectrics

Thermoelectric converters are based on the scientific principle discovered by Germany physicist Thomas Seebeck 150 years ago—that a flow of heat through dissimilar metals can produce a charge of direct current. Recent improvements in semiconductor metals (IM—July '60, p48) has increased the efficiency of the method. Two years ago a researcher could not get more than a single watt of electricity from a converter; the figure now has been raised to 100 w.

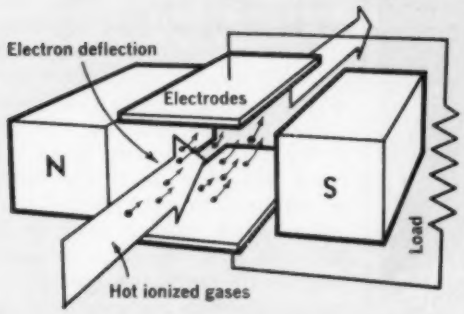
• **Furnace Units** — Perhaps the greatest interest at the moment is in thermoelectric converters to power air circulation units for furnaces. Minnesota Mining will have its first prototype system ready late next year.

U. S. furnace makers and utilities also are doing research in this field. One furnace company recently exhibited a 130-w. unit said to be in the "final phase of development." And Northern Illinois Gas Co. a few weeks ago bought a 100-w. converter from Westinghouse, after experimenting with smaller units.

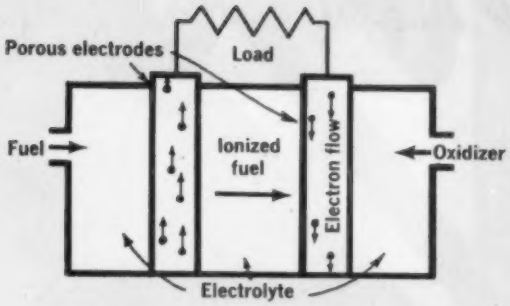
Experts predict that thermoelectric appliances will become fairly commonplace in the next few years. The Borg-Warner refrigerator and the Westinghouse cooler are samples of things to come. Air coolers, home refrigerators and freezers may be on their way, probably powered by natural gas or propane.

II. Thermionics

A thermionic generator produces electrical power by using the elec-



MAGNETOHYDRODYNAMIC GENERATOR: A magnetic field deflects electrons from a fast-moving stream of hot ionized gases. May serve as auxiliary source at power plants.



FUEL CELL: A fuel and an oxidizer react chemically to initiate current. Various fuels, oxidizers, and temperatures are used in cells being readied for home and industrial uses.

Closer to Factory and Home

trons boiled off the surface of a metal that is heated to 1000-2000 C or more. Like a thermoelectric converter, the system is based on the movement of electrons from a hot to a cold surface. But in this case the heated electrons are emitted into a vacuum or gaseous vapor rather than across the junction of dissimilar metals.

• **GE's Plasma Diode**—Because they operate at extremely high temperatures, thermionic generators are ideally suited for direct conversion of nuclear heat. Such is the purpose of the thermionic "plasma diode" that General Electric has been working on for several years. Uranium contained in the cathode is the heat source. Gaseous cesium is used to neutralize the electrons emitted by the cathode. Temperatures go up to almost 2500 C.

Another type of thermionic device uses a vacuum instead of the cesium vapor. The electrodes are placed very close together to facilitate electron flow. Last fall, General Electric started production of these devices for research and laboratory applications. They are reported to operate at comparatively low temperatures (1100 C), but they have lower efficiency than the vapor type.

Besides their application in reactors, thermionic generators are expected to find a market as heat-sensing units in control and protective equipment. They could also be operated by intense solar heat in space vehicles.

III. The Promise of MHD

The magnetohydrodynamic (MHD) generator came into sudden prominence more than a year ago when ten U.S. utilities announced that they had joined forces with an electrical-equipment manufacturer (Avco Corp.) to build a $350,000 100-kw coal-burning prototype.

• **For Power Plants**—Of the four new systems, MHD appears to be the only one likely to take its place in large-scale stationary power plants. Studies indicate that it could provide 60% thermal efficiency, compared with the 40% now available in fossil-burning turbine plants.

A MHD unit generates electricity by driving ionized gas at supersonic speeds through a magnetic field. Electrons in the gas are deflected by the field and picked up by electrodes at right angles to the flow of gas.

MHD still faces several years of research. Even when ionization of the gas is induced by "seeding" with cesium or potassium, the gas must be heated to close to 2500 C—a temperature that few solids can tolerate.

• **Four-Minute Run** — Last year Westinghouse ran a 10-kw-rated MHD generator for four minutes at 2½ kw. Combustion gases seeded with potassium ions sped through the magnetic field in a ceramic-lined tube. Early MHD efforts, by GE and Avco, had been sustained for only a few seconds.

Noncontinuous, open-cycle MHD approaches also are under study. Such a unit in a space vehicle might convert the blast of rockets into usable power.

IV. Fuel Cells

By far the most variable system in development is the fuel cell. Several major types are under study in U.S. and European laboratories, using a wide range of fuels, oxidizers, and electrodes. A number of prototypes have been built—for driving everything from a lift truck to a tractor—but none has reached commercial status.

• **High Efficiency** — A fuel cell converts chemical energy into electricity. Unlike other systems, its efficiency does not depend on its size. It is the most efficient of them all: Up to 90% of its chemical energy theoretically can be converted into current.

At least five U.S. corporations today are working on regenerative fuel cells, in which the same fuel and oxidizer is used over and over again. One company, Hoffman Electronics, recently exhibited a sodium and bromine cell that is regenerated by using solar cells to electrolyze the sodium bromide formed.

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ferent types of fuel cells vary widely. Some aimed for consumer application would run at room temperatures. At the other end of the scale are units that operate at 500-800 C: They are reported to be the best types for converting fossil fuels into large quantities of electricity.

How much interest there is in fuel cells is shown by a research program of Battelle Memorial Institute: Fuel-cell research is being done for 40 companies, each of whom is paying $7,500 a year for three years. And Allis-Chalmers Mfg. Co. is stirring up educational interest by offering fuel-cell sets to high schools for $9.75. (*Chemical Week, Electrical World, Business Week, Purchasing Week*)

Researchers Report Improved Chemicals

CHEMISTS came forward with some promising new drugs, polymers, and intermediate chemicals at a recent meeting of the American Chemical Society. Note these:

• **Drugs** — Ciba Pharmaceutical Products is clinically testing a series of derivatives of methyl reserpate as sedatives with low hypotensive activity. Also under clinical test are two muscle relaxants developed by Irwin, Neisler & Co., said to have five times the potency of relaxants now in use.

And Wm. S. Merrell Co. has put anti-inflammatory and analgesic properties in a single drug by chemically linking benzylfluorenes with aryloxypropanolamines.

• **Polymers**—Union Carbide Corp. disclosed that it is working on nylon-7, a material that is said to produce a fiber with higher melting and softening points than nylons-6 and -6/6.

In other polymer developments, Esso Research & Engineering reported a process for sulfonating polymers without cross-linking them, and Du Pont disclosed a series of polyspirooxetanes with melting points up to 290 C.

• **Intermediates**—A chemical previously available only as a by-product of soap manufacture now is being synthesized from acrolein by Shell Development Co. (*Chemical Week, Apr 1, p 43*)

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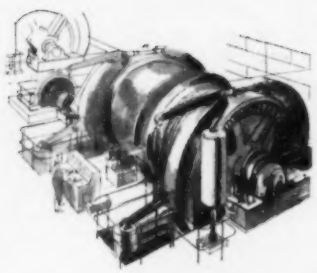

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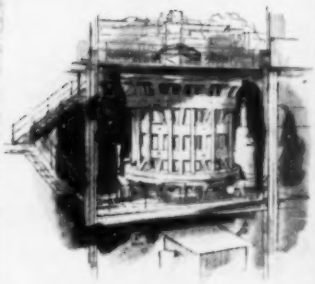
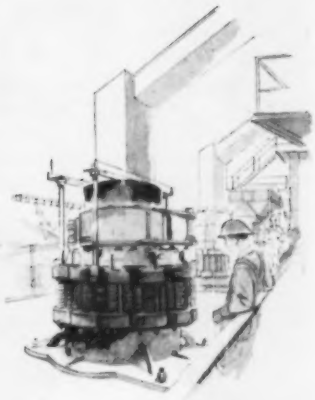


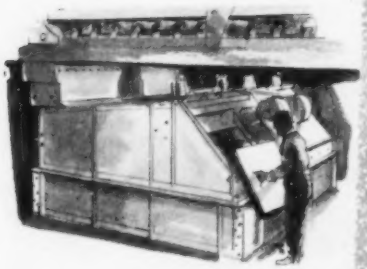
FOR PRIMARY CRUSHING

Symons® Primary Gyratory Crushers are built for big tonnage, heavy duty primary breaking in 30″, 42″, 48″, 54″, 60″, and 72″ feed opening sizes. Capacities to 3500 or more tons per hour.



FOR REDUCTION CRUSHING

Symons Cone Crushers are built in both Standard and Short Head types, in sizes from 22″ to 7′ in diameter. Capacities from 6 to 900 or more tons per hour.



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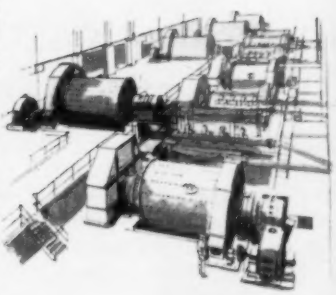
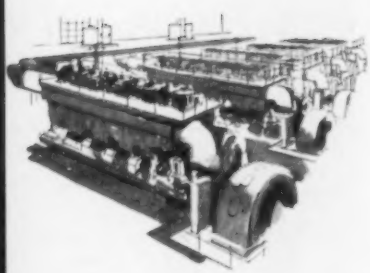


FOR WET AND DRY GRINDING

Nordberg Grinding Mills include Rod, Ball, Pebble, Tube and Compartment types, in sizes from 6′ to 13′ in diameter and up to 50′ in length.



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TO CURIOUS OUTSIDERS, the doors to part of the Edinburg, Indiana, plant of the U.S.A.'s Amos-Thompson Corp. stay permanently closed. Occasionally, the doors open to disgorge a new plastic boat or perhaps a batch of big industrial containers.

Inside a new process is at work that should help polyethylene and perhaps other plastics open new markets with large one-piece plastic products. Through its Amos Molded Plastics Division, Amos-Thompson is one of five U.S. companies licensed to use the basic process. Each jealously guards the refinements it has developed to produce such things as housewares, acid tanks, TV tube insulation boots, food containers.

• **Kits, too**—But there is no such secrecy to shroud an even newer development of this industrial molding process. This is a kit with which you can literally bake a plastic picture in the oven at home. Revell Inc., a fast-growing American manufacturer of toys and hobby kits, has put just such a kit on the market.

To understand the kinship between large industrial containers and a hobby kit, look first at the basic process, known in Europe as the Engel process after its inventor, Thomas Engel of Germany. It is already in use in several European countries where it now consumes polyethylene at an estimated annual rate of perhaps 1-million kg. Spencer Chemical Co., an American polyethylene producer which holds rights to license U.S. molders to use the Engel process, hopes the process will require more than 3-million kg. of the plastic yearly in the U.S.A. by 1963.

• **How**—Spencer calls the process "Thermofusion". Here is how it works: Start with polyethylene powdered to the consistency of table sugar (eventually polypropylene and several other plastic materials may be used). The powdered plastic is poured into a metal mold built in the same shape as the desired end product—say, a brine tank, or a boat hull. Then the mold full of plastic is put into an oven and baked. When it emerges some of the plastic has adhered to the mold; the amount that sticks can be controlled by varying the time and temperature of the baking. The plastic that is still loose is poured out, and the mold returned to the heat for the final treatment.

The most dramatic advantage of the process is the low cost of the molds which, because they are not subject to much stress, can be made of much lighter material than is necessary with other techniques. *Business Week, Mar* 11, *p* 65)

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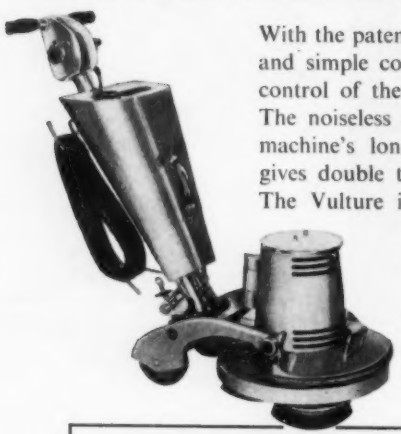

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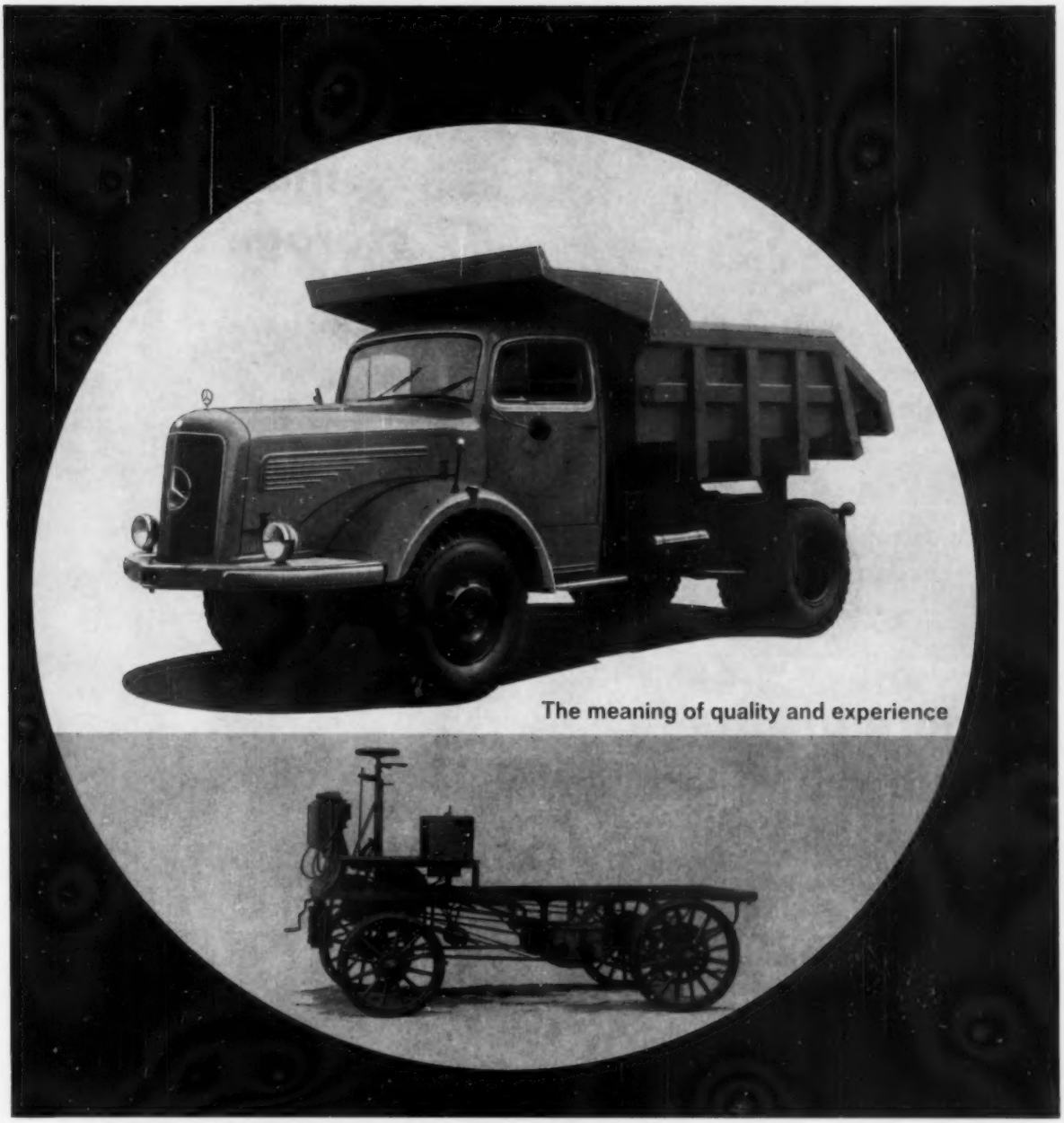

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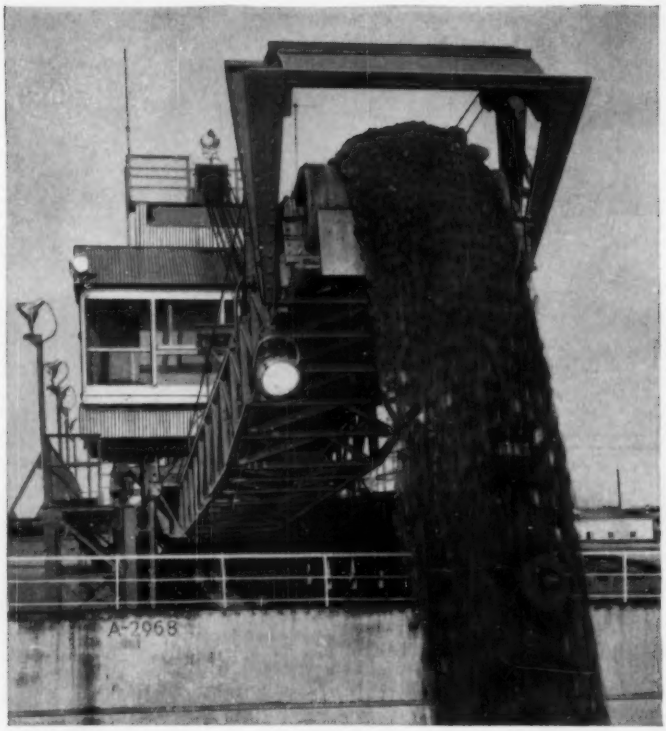

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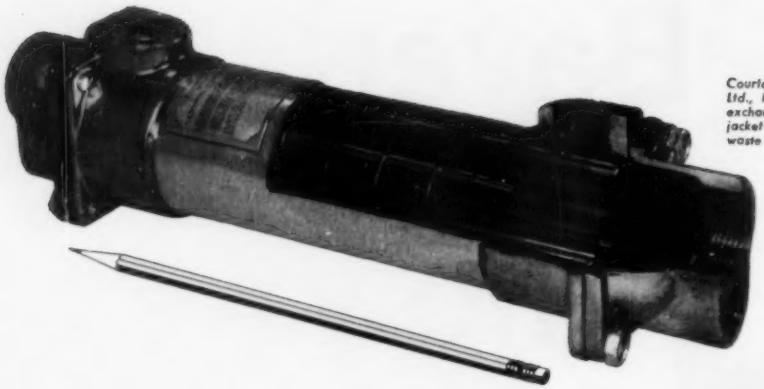

Courtesy: American Standard Products (Canada) Ltd., Kewanee Ross Products. Type "BCF" heat exchanger for lubricating oil coolers, engine jacket water coolers and water heaters using waste steam

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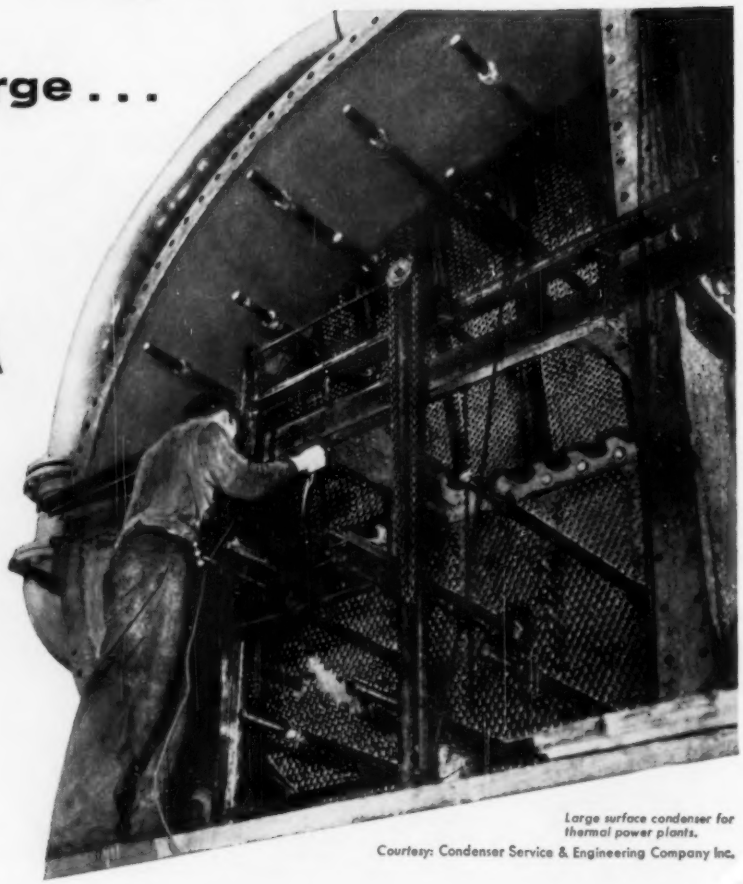

Large surface condenser for thermal power plants.
Courtesy: Condenser Service & Engineering Company Inc.

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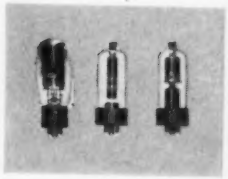
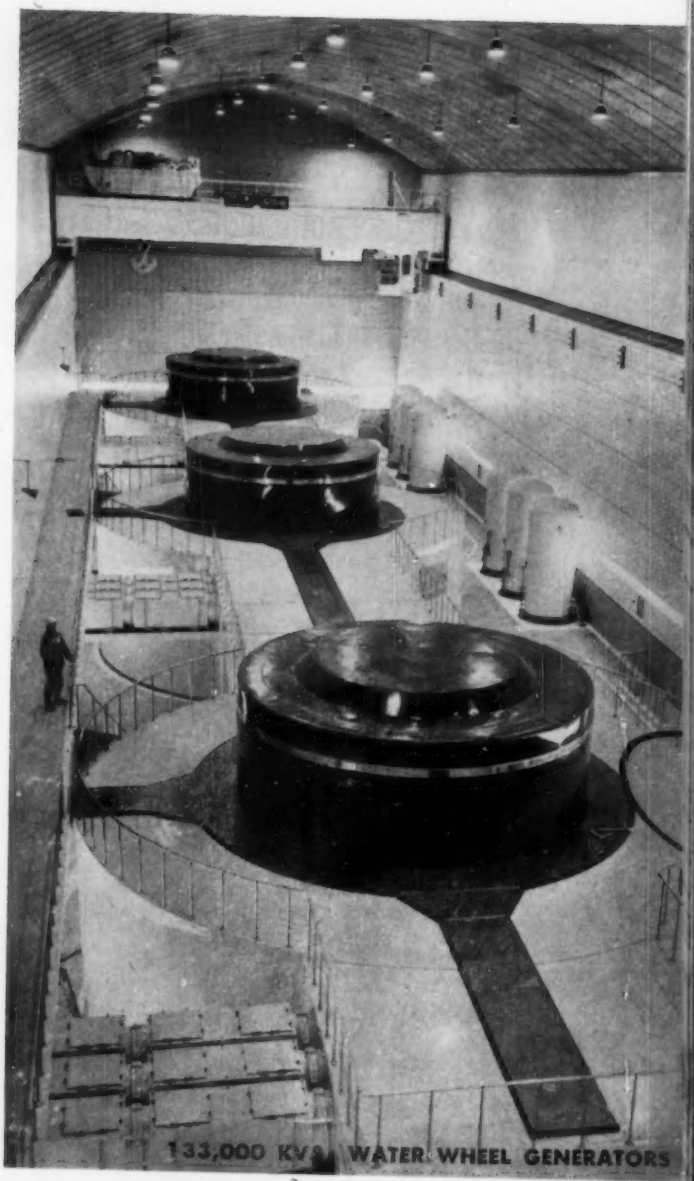
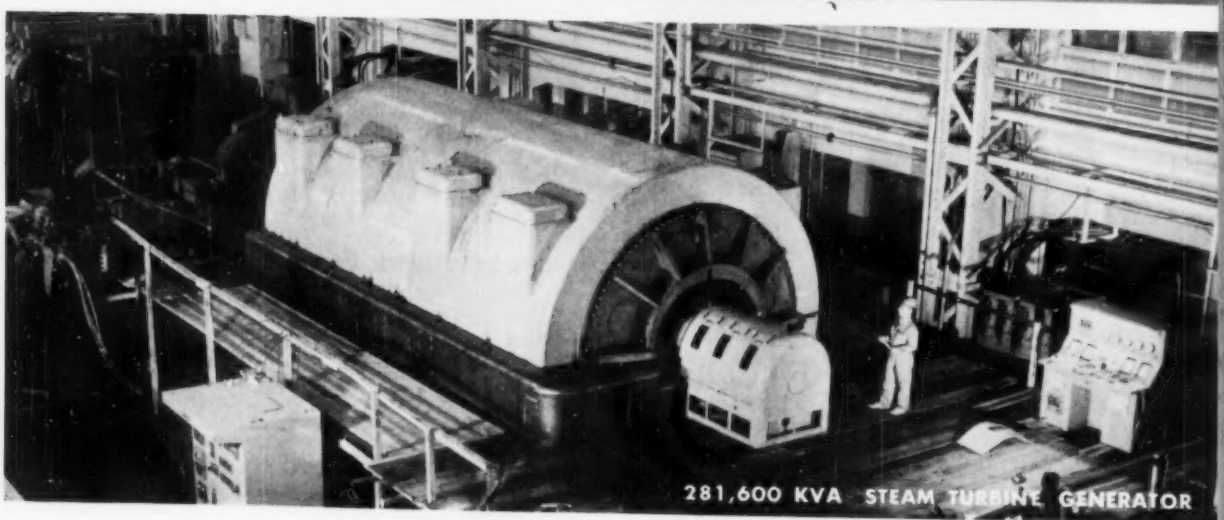




133,000 KVA WATER WHEEL GENERATORS

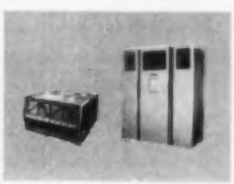
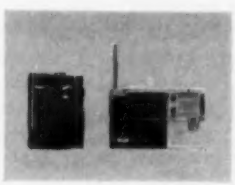
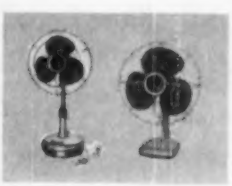


281,600 KVA STEAM TURBINE GENERATOR

1875

1961

PIONEER IN ELECTRIC ENGINEERING

A pioneer according to the dictionary is "one who goes before, preparing the way for others to follow" and this is exactly what Toshiba has done in the field of electric engineering.

Toshiba scientists, 1,000 strong, have 3,500 individual patents and 750 registered original designs to their credit. They, together with the 20 factories, 52,000 employees and 56 subsidiary firms of Toshiba, have provided satisfied customers throughout the world for 86 years with quality Toshiba products ranging from tiny transistors to mammoth generators.

Look for the Toshiba mark, now and in the future, for "pioneer" products.

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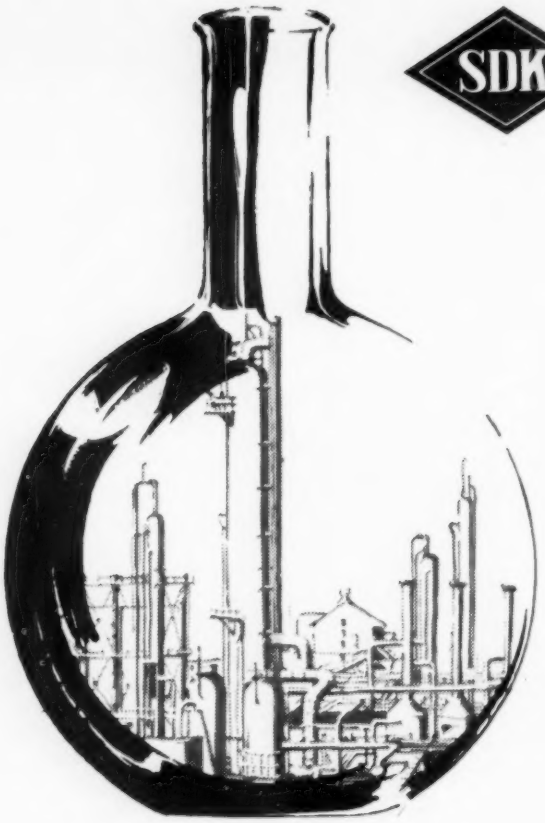

SDK

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FOR PROGRESS and PROSPERITY

PRODUCTS

FERTILIZERS :
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ELECTRODE :
SYNTHETIC GRAPHITE ELECTRODE, REACTOR GRAPHITE, CARBON PRODUCTS

ABRASIVE :
MORUNDUM (Fused Alumina), DENSIC (Silicon Carbide)

CHEMICALS :
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Recommended Reading

[NEW BOOKS]

ADVERTISING: COMMUNICATIONS FOR MANAGEMENT, by John W. Crawford, explains the uses and processes of advertising—the criteria and methods of advertising research, preparation and evaluation of copy, how to use advertising media, and the relation of advertising to the marketing plan, sales promotion, publicity, and public-relations campaigns. *Allyn & Bacon, Inc.*, 150 *Tremont Street, Boston* 11, *Mass., U.S.A.* 388 *pages*, $7.50.

The third volume of the EPA's GUIDE TO LEGISLATION ON RESTRICTIVE BUSINESS PRACTICES, covering the European Coal and Steel Community, the European Economic Community, Austria, Canada, and Portugal, has just been published. Each section contains historical background, texts of the treaty or legislation in force, and reports of administrative and court decisions. (Vol. 1, covering Denmark, France, Germany, Ireland and Italy, and Vol. 2, covering the Netherlands, Norway, Sweden, the United Kingdom and the U.S.A., are also available.) *Organization For European Economic Co-operation*, 3, *Rue Andre-Pascal, Paris* 16°, *France*. $6.00 *per volume.*

Why is the personnel function of management important and how can it be implemented? These and other questions are discussed in PERSONNEL ADMINISTRATION, A POINT OF VIEW AND A METHOD, by Paul Rigors and Charles A. Myers. The book covers the entire range of recognized personnel activities, emphasizing philosophy and approach rather than details. Included is a group of case studies. *McGraw-Hill Book Co.*, 330 *West* 42*nd Street, New York* 36, *N.Y., U.S.A.* 750 *pages*, $7.95 *or* 62*s.*

ULTRASONICS AND ITS INDUSTRIAL APPLICATIONS, by O. I. Babikov—the first book in the metalworking field to be entirely translated from Russian to English—covers the theory of ultrasonics, how vibration is generated, pulsing, flaw detection, inspection, machining, soldering, plating, cleaning and metallurgical effects. *Consultants Bureau Enterprises*, 227 *W.* 17*th Street, New York* 11, *N.Y., U.S.A.* 224 *pages*, $9.75.

FINANCIAL PLANNING FOR GREATER PROFITS explores and analyzes the basic relationship of sound financial planning to corporate growth. The report tells how to establish and meet corporate objectives, coordinate profit planning and money management, and how to use "total financial planning" to increase company profits. *American Management Assoc.*, 1515 *Broadway, New York* 36, *N.Y., U.S.A.* 152 *pages*, $3.75.

[REPORTS, PAMPHLETS]

A special report by the editors of *Electronics* will tell you all about MICROMINIATURIZATION: component- circuit- and function-oriented approaches, new form factors, equipment and systems. 75¢.

Where, when, and how you can use non-destructive testing methods to improve manufacturing, maintenance and quality-control is discussed in *Factory's* Engineering and Technology Report No. 10 (Jan, p61). 35¢.

AMERICAN PROSPECTS FOR GROWTH THROUGH 1975, a study prepared by the McGraw-Hill Economics Dept.—discusses the growth potential for the U.S. economy as a whole and for a number of individual industries.

(For copies of the above McGraw-Hill reprints, write to the Editors, INTERNATIONAL MANAGEMENT, *and your request will be forwarded to the publication in question.)*

A new monthly newsletter called INTERNATIONAL ART MARKET, gives the casual buyer and the expert an up-to-date report on trends and current prices of oils, prints, antiques, and objets d'art—based on New York and European auction galleries. *International Art Auctions*, 133 *East* 95*th Street, New York* 28, *N.Y., U.S.A.* $12.00 *a year.*

[DIRECTORIES, REFERENCES]

THE FBI REGISTER OF BRITISH MANUFACTURERS, 1961, lists nearly 8000 companies under 5400 headings. French, German, and Spanish glossaries are included, plus a list of British trade associations, brand and trade names, and registered trade marks. *Kelly's Directories Ltd. and Iliffe & Sons Ltd., Dorset House, Stamford Street, London SE*1, *England.* 1162 *pages*, 50*s or* $7.00.

The 1961 DIRECTORY OF MANUFACTURERS' REPRESENTATIVES lists over 15,000 domestic and export representatives in the U.S.A., Canada and Puerto Rico. Listings are arranged geographically and include principal products and trading area covered. *Mfrs'. Agent Publishing Co.*, 554 *Fifth Ave., New York* 36, *N.Y., U.S.A.* 217 *pages* $20.00.

The AMA has just published the ENCYCLOPEDIA OF SUPERVISORY TRAINING, by Elizabeth Marting—a comprehensive collection of tested methods and sources of training materials—adaptable ideas and plans—that can help you build a better training program. *American Management Assoc.*, 1515 *Broadway, New York* 36, *N.Y., U.S.A.* 480 *pages*, $22.50.

The 1960-61 edition of NORDISK HANDELS KALENDER lists the names and address of nearly 85,000 exporters, importers, industrial and commercial firms of the Scandinavian countries. Product headings are in six languages. *H. P. Bovs Bogforlag*, 63 *Svanemollevej, Copenhagen, Denmark.* $12.00.

AN ATLAS OF AFRICA, by J. F. Horrabin, contains maps of rivers, mountains, and populations, plus sections showing various political and social problems. *Frederick A. Praeger*, 64 *University Place, New York* 3, *N.Y., U.S.A.* $1.45.

Personal Business — *A rough*

	Hotel Bed & bkfst US $	Dinner	Night on town	Taxi (15 min ride)	Car rental (per day)	Secretarial services (per hour)
Athens	a) 4.25-6.00 b) 3.00-3.75	3.30	1.25	30¢-50¢	3.50-5.00 (5.00-6.00 + driver)	——
Beirut	a) 13.85 b) 11.00	8.00	26.00	50¢-75¢	——	3.50
Belgrade	a) 6.00-7.00 b) 5.50	2.00-3.00	75¢	75¢	20.00 + driver	3.00 per day
Bombay	a) 8.40-11.00 b) 6.50-9.00	3.00-4.00	3.00-3.50	50¢	6.00-8.00	2.10-3.15
Brussels	a) 8.00 b) 6.00	8.00	3.00	3.00	4.00	1.50
Buenos Aires	a) 20.00 b) 13.00	10.00	6.00	50¢-75¢	20.00 (8.00-22.00 + driver)	2.00
Caracas	a) 11.50-13.60 b) 13.75	12.00	25.00	85¢-1.00	8.30-8.95	1.75-3.20
Copenhagen	a) 15.00 b) 12.00	7.50	2.25	1.60	3.50	3.00
Duesseldorf	a) 12.00 b) 8.00-7.00	8.00-12.00	5.50	2.00-3.00	4.00-10.00	——
Hong Kong	a) 16.75 b) 13.35	6.00	14.00	1.35	11.50 (15.00 + driver)	——
Johannesburg	a) —— b) 9.00	6.20	2.80	2.10	6.20	2.95
Lagos	a) 17.00 b) 12.00	7.00	——	1.50	8.40	——
London	a) 16.25 b) 9.10	7.00	4.35	63¢	4.62	2.58
Melbourne	a) 11.00 b) 7.50	11.50	3.50	1.50	7.00	2.25-3.50
Mexico City	a) 15.00 b) 12.00	12.00	8.00-10.00	3.20	8.00-10.00	4.00 per day
Moscow	12.00	6.00-8.00	5.55	90¢-1.25	2.80 per hr + driver	——
New York	a) 18.00-30.00 b) 17.00-23.00	12.00-15.00	10.00-12.00	1.50	10.00	3.25
Paris	a) 15.00 b) 12.00	8.00	20.00	1.40	5.30 40 mi/day	1.00
Stockholm	a) 11.90 b) 8.00	12.00	3.50	2.20	4.85	2.90
Tokyo	a) 10.00 b) 8.00	8.30-14.00	3.30	80¢	14.00 +driver	3.30
Vienna	a) 12.00 b) 8.00	5.00	4.00	2.00	4.00	2.00
Zurich	a) 15.00-20.00 b) 10.00-15.00	5.00	5.00	3.00	6.00	1.50-2.00

A WORD OF CAUTION for those who want to draw conclusions from this list: Prices (all in U. S. dollars) are approximate and liable to change. And lack of space has caused several regrettable omissions.

Hotel prices are for a single room in (a) a deluxe hotel, (b) first class. Service charges are extra. The reason Caracas' luxury hotel is cheaper than the first-class one is that the Hotel Humboldt is a "white elephant" whose price is kept down to entice visitors. Note that in Moscow the $12.00 rate is for bona fide business travelers only.

Dinner covers a meal for one in a first-class restaurant, and includes wine and tips (except in Bombay, where a $3.00 tourist permit is necessary for the drinking-minded).

Night on the town covers the cost of a third-row center seat at the theatre, opera, or at a concert. As Beirut and Hong Kong have none of these we give the price of a visit to a nightclub. In Paris you have dinner and a show at the Lido, Caracas and Mexico City the best seat at the bullfight.

Taxi rides in Athens and Beirut never last as long as 15 minutes, so they come

uide to the costs of business travel

ranslator services (per hour)	Cigarettes (20)	Whisky & soda	Suit	White shirt	1 pair shoes	Present or "peace offering"
———	26¢	50¢-75¢	100.00	7.50-9.00	10.00-13.00	Silk embroidered blouse $6.00
3.50-4.00	35¢	90¢	95.00	6.00-8.00	13.00-20.00	3 yds brocade $12.00
3.00 per day	15¢	1.50	75.00	5.00	10.00	Pigskin handbag $15.00
2.10-3.15	25¢	1.50-2.00	21.00-42.00	10.00	7.50	"Bidri" metal work cigarette case $5.00
1.50	24¢	90¢	120.00	6.00	12.00	Lace $10.00
2.50	30¢	1.00-2.00	100.00-125.00	10.00-12.00	15.00-20.00	Crocodile handbag $40.00-$50.00
5.30	40¢	1.28	100.00-125.00	10.00-12.00	21.00-29.00	Cochano gold brooch $10.00
¢ per word	65¢	1.00	125.00	6.50	20.00	Royal Copenhagen figurine $12.00
———	50¢	70¢-95¢	60.00-70.00	6.00-8.00	12.00	Rosenthal porcelain vase $10.00
———	20¢	30¢-70¢	55.00	3.50-4.50	13.00	Chinese silk coat $50.00
8.85 er 1000 wds	26¢	34¢	98.00	9.80	15.40	Ring of semi-precious stone set in silver $19.60
———	22¢	70¢	70.00	9.00	17.00	Ebony head $13.00
8.40 r min. ½ day	58¢	70¢	84.00	7.00	18.20	Cashmere sweater $18.00
4.50	36¢	34¢	90.00	7.00	17.00	Opal necklace $45.00
4.00 per day	28¢	1.50	100.00	5.00	20.00	Solid 14-carat gold bracelet $100.00
1.67	50¢	———	200.00	11.00	30.00	Enameled vodka glasses $40.00
6.25	35¢	95¢	85.00	6.00	25.00	Nylon negligee $15.00
1.50	30¢	1.00	80.00	10.00	22.00	1 oz Chanel no. 5 $11.40
2.90	58¢	1.30	87.00	7.15	25.00	Bohus sweater $70.00
4.20	26¢	83¢	125.00	5.00	25.00	Pearl choker $50.00
9.00 r min. 3 hrs	40¢	80¢	70.00	7.00	13.00	Petit point evening bag $15.00
7.00-10.00	50¢	1.00	80.00-90.00	8.00	18.00	Wristwatch $100.00

out cheaply. No tipping of Athenian, Mexican, or Caracas drivers.

Car rental is for self-drive cars unless otherwise indicated. Kilometerage (usually 4-8 cents/km) is extra. Wise businessmen in Hong Kong should hire a "tourist-sightseeing" car for a flat $2.10/hour. No wise businessman will want to brave Beirut's traffic.

No **secretarial** or **translator services** as such in Athens, but deluxe hotels will loan you their secretaries free of charge. Labor shortage in Germany accounts for the omissions under Duesseldorf.

Cigarettes are local; you will want to follow your own taste.

Whisky price is that charged by good bars or hotels. To save your money in Belgrade try the local *shlivovitsa* on the rocks, and in Mexico City a refreshing glass of Castillo rum and soda.

Suit, shirt, and shoes are all first-quality. In several cases the suit is custom-made, as are the shoes in Belgrade, Hong Kong, and Tokyo. The suit you pick up in New York is one of the new synthetics.

The **"peace offering"** is clearly for the lady back home. Here your choice—and perhaps the price—depends on her.

McGRAW-HILL INTERNATIONAL MANAGEMENT'S

Last-Minute Memos

Bowling Everywhere: The two companies with the most at stake—American Machine & Foundry Co. and Brunswick Corp, both of the U.S.A.—plan to see that other countries follow the lead of the U.S. in making indoor bowling the most popular—and profit-making—sport of the day. AMF and Brunswick both make the equipment that has spurred bowling on to greater success. Now AMF has installed the first automatic bowling alleys in Beirut, Lebanon, after earlier setting up centers in Europe and Latin America, and it soon plans to move into Tehran, Iran. Beirut alleys will be run by a local company, with AMF collecting royalties on use of its equipment. And Brunswick has announced that it soon will be operating bowling demonstration centers in West Germany, West Berlin, Holland, Belgium, France, Austria, and Mexico.

Argentine Skyscraper: Construction of a 65-story office building, South America's tallest, is scheduled to get underway in Buenos Aires late this year with European financing.

Seaway Improvements: Shippers using the St. Lawrence Seaway this year are finding many of the port facilities improved. But these improvements are being used as justification for higher freight rates and tolls, *Purchasing Week* reports.

Computers Down Under: The Australian government soon will begin asking for bids and proposals covering about $10-million worth of large computers, according to *Electronics*. The computers will be used by the Australian armed forces.

Japanese Fiber: Toyo Koatsu, a leading Japanese fertilizer manufacturer, recently began commercial production of Yurilon, a new synthetic fiber made from rice bran oil, urea, and ammonia. Initial production is one ton per day, but this is expected to be raised quickly to 10 tons per day. Yurilon is said to be 10% lighter than nylon or acryl, and to have good dyeing and heat-resisting properties. It is being studied for possible use as a blend with wool or nylon.

Thai Canal: Thailand's cabinet reportedly has approved the building of a $300-million canal across the Isthmus of Kra, fulfilling a century-old dream that would link the Gulf of Siam with the Bay of Bengal. The ambitious program, which would include a harbor, highways and railroads, is backed by prominent Thai businessmen and leading French and U.S. construction firms, including Raymond International (see Men & Companies). A joint Thai-foreign company set up for the purpose, Laemthong Pathana Co., is conducting a preliminary survey.

Premium for Riders: A taxi company in Ohio, U.S.A., has taken a hint from supermarkets and is handing out premium-earning trading stamps.

Future Power: Atomic power will account for 4% of total U.S. generating capacity by 1965, 10% by 1970, and 25% by 1980, reports *Engineering News-Record*. These estimates are the consensus of 40 utilities, manufacturers and national laboratories.

Singapore's Future: The Government of Singapore plans to spend at least $100-million in the next four years to get private companies, local and foreign, to spend even larger sums to industrialize the island state. The government's intent is to create conditions that encourage private capital, even if this means protective tariffs —an about-face for this traditional center of free trade.

More Isotopes: A major development in the industrial and agricultural use of radioisotopes is expected in Europe with the establishment of an isotope bureau as part of Euratom, *Nucleonics* reports. The Euratom Commission has plans for printing and distributing 30 information pamphlets explaining the value of isotopes to various industries. Presently, about 70% of the available isotopes in the six Euratom countries go into medical applications; the remainder are industrial, largely in Germany.

Airline Pact: Sabena Belgian World Airlines has acquired 30% of the stock of TSA Trancontinental, Argentina's largest private-enterprise airline. *Aviation Week* reports that Sabena will handle TSA's sales, reservations, and similar service outside of South America. TSA will handle Sabena affairs in South America.

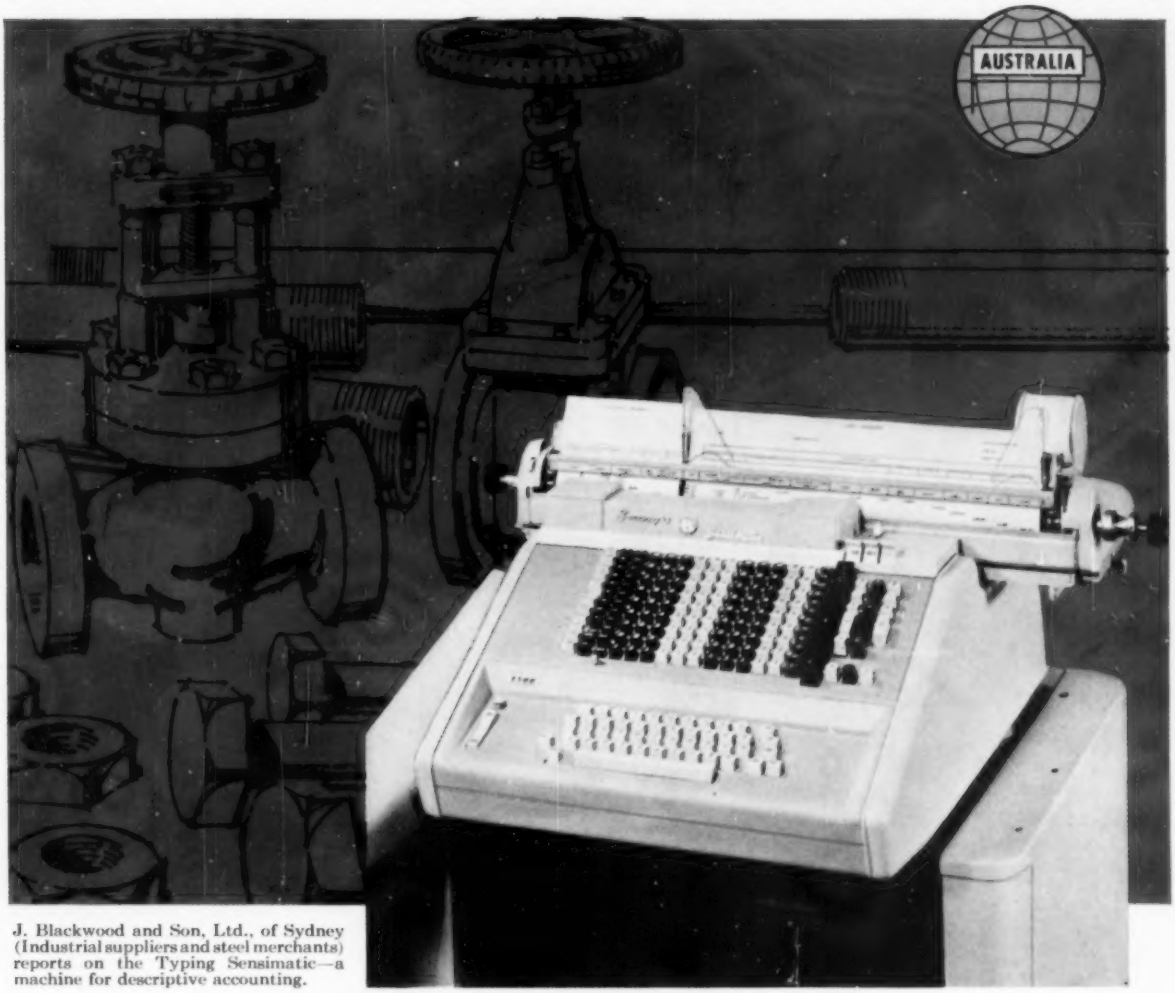
To the Cleaners: Coin-operated drycleaning machines are swiftly coming of age in the U.S. Note these developments: Whirlpool Corp.'s recent installation of an elaborate 14-machine center in Ohio, and its announcement that it has 800 more machines on order; Borg-Warner Corp.'s statement that its Norge Division now has 300 installations in place throughout the U.S.; coin-operated models recently shown by nine manufacturers at the National Institute of Drycleaning convention. Several manufacturers suggest they will eventually market the machine overseas.

Metric Fervor: More countries are leaning toward the metric system. Effective November 15, the metric system will be the only authorized system for all weights and measures in the United Arab Republic. And pressure is building up in Britain for a change to the system. A pamphlet recently issued by the influential Political and Economic Planning urges a switch to the metric system, pointing out that in coinage the longer the delay, the heavier the expense; and in weights and measure, the longer the delay, "the heavier the handicaps to exports."

Fiber Venture: Celanese Corp. of America and Germany's Farbwerke Hoechst AG are pooling resources to manufacture and market the new nytril fiber Darvan in Europe. The U.S. company acquired world rights to the fiber more than a year ago from B. F. Goodrich Co. Hoechst, a major producer of organic and inorganic chemicals, will supply all raw materials for the new plant at Bobingen, Bavaria, which is scheduled to begin production early in 1962.

Trade-in Machinery: U.S.A.'s Pratt & Whitney has set up a subsidiary under which it will accept used or surplus machine tools of any make as part payment on P & W equipment.

BUSINESS THROUGHOUT THE WORLD DEPENDS ON BURROUGHS



J. Blackwood and Son, Ltd., of Sydney (Industrial suppliers and steel merchants) reports on the Typing Sensimatic—a machine for descriptive accounting.

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BELGIUM

TOP BRONNEN S.P.R.L. (Processors of mineral water) reports from Nederbrakel, "Thanks to our Burroughs Sensimatic installation, we were able to increase accounting productivity by 30%."

ENGLAND

TATE & LYLE, Ltd. (Sugar refinery) reports from London, "Since installing Burroughs Sensimatics, we have increased efficiency so as to show a saving of £9,000 every year."

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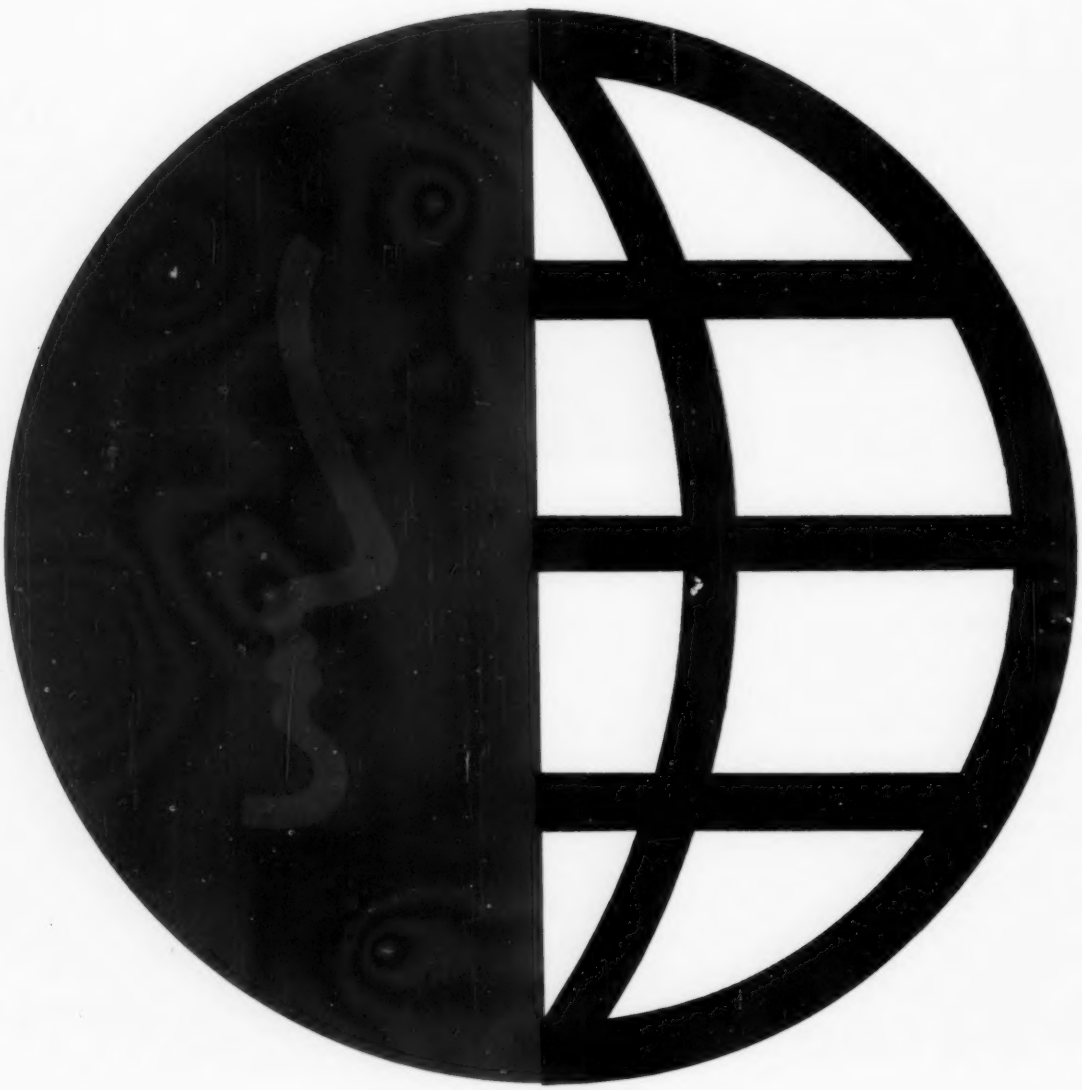
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